

THE BOX

AN ANTHOLOGY CELEBRATING 50 YEARS OF CONTAINERISATION



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Preface

Ten years ago, Sam Ignarski a former TT Club executive, came up with an original way of marking the Club's 25th Anniversary. The event coincided with what was generally accepted as the fortieth year of that most revolutionary of ideas – the shipping container. So with a little help from EMAP, the then publishers of Containerisation International magazine, Sam put together an intriguing Anthology of the container's history during those preceding forty years.

Now, ten years on, we are celebrating the 50th Anniversary of this most significant of influences over globalisation and the last ten years have arguably been an even more dynamic period in the story of the container than any before. To underline some of these changes the TT Club has decided to re-publish the Anthology from 1996 but with some carefully chosen additions.

We begin, as you might expect, at the end. Chapter 14 is the last chapter of the original 1996 edition and wraps up the view from that year with articles looking into the authors' respective "crystals" to attempt some longterm forecasting of The Box's future. We have added a final piece to this section, which, with the benefit of hindsight sums up the accuracy or otherwise of these predictions.

The whole of Chapter 15 is new for the 2006 edition. There has been no attempt to present a comprehensive review of the intervening ten years since the original Anthology left off in 1996 but certain key themes and developments that have influenced the growth of The Box since then are highlighted. The subjects concerned – globalisation, the economic growth of China, advances in IT, port privatization, security and post-panamax vessels – have all been briefly treated in the same anthological way as the previous forty years. The editor and TT Club wish to thank John Fossey, editor-in-chief of Containerisation International, for putting his publication's editorial resources at their disposal for this exercise.

The Perspective from 2006 is the final chapter, at least for now. It concludes with a similar attempt to look into the future as that presented back in 1996. One wonders what we will make of these predictions just ten years from now.

September 2006

Introduction

This Anthology sets out to recall some of the memories and milestones of the container industry over the last 50 years. Readers of this book will find few references to the TT Club as such. Instead we have tried to capture aspects of the restless and changing industry the Club has served since 1968.

It has been an uphill task to limit this book to a few hundred pages. By June of 1995, the pile of material we managed to collect for the book was around two feet high. Much of this was inevitably somewhat dry and technical in nature and not necessarily the easiest of material to anthologise. The result is an amalgam of first hand accounts, contemporary journalism and a number of articles commissioned to cover some aspect of the industry not readily accessible to our researchers. We have tried to deal with the subject of containerisation from a number of different perspectives. In so doing old chestnuts have been re-roasted, ancient rivalries revisited and dark chapters from the past reopened. It is interesting how the older topics tend to resurface in our own times: the pieces on ISO standards and overcapacity are as true today as when they were written and the stories of companies and sectors which flew too close to the sun contain lessons for us all.

The omissions in a work of this sort are legion: the culprits, as always, are the pressure of operational life in the TT Club in what has been an eventful year; the wealth of material already to hand; and the habitual bias of history to linger on the past. We nevertheless hope the few nods in the direction of the future we have included will stand inspection during the years to come.

The limitations of space prevent a full listing of the individuals who in some way have speeded the passage of this book. The authors speak for themselves. To those whose contributions were in the event excluded on grounds of space, no apology is sufficient. I am nevertheless duty bound to give thanks to the virtual office of people who carried the book through from idea to finished product. Peter Owen and the Containerisation International team supplied the professionalism we knew to expect when we asked them to collaborate with the Club in the production of this book. The artist Jon Blake took a brief and returned with the stunning artworks that appear in this book. Roland Hart and others in the Business Intelligence Centre in Thomas Miller & Co. sourced editorial material time and again after others had failed. Francis Phillips, the desk editor performed minor miracles producing finished copy for deadlines. Thanks also to Patricia Sit in Hong Kong for keeping the wheels turning.

Last of all we would like to thank the Chairman, Sir David Thomson, the Board of the TT Club and the Members of the Club for their continued support.

Sam Ignarski

Hong Kong, 1996



BEFORE

Breakbulk journey

Antigone had brought us here to work, and work we did, from 0700 to 2300 daily, the mates relinquishing the deck at midnight to the Senior Midshipman. The other apprentices assisted with the cargo work, sitting for hours in the 'tween decks, ensuring the cargo was not broached. 'Cargo watching' was the ultimate in boredom, a thankless task in the dreariest of surroundings; this was not what Conrad or Stevenson had promised, sitting glaze-eyed, guarding a stow of pilferable goodies.

For us of more senior rank it was an endless patrol of the deck, a climbing down and climbing up of hatch ladders, of wrangles and disputes over damage and dunnage with gang-leaders and foremen, of searches for lost bits and pieces, the location of over-stowed items buried thanks to Liverpool's slovenliness. All these varied chores made up our work, a sweaty, exhausting contrast to our lordly hours on the bridge.

For those four days in port we took bites out of the 'general' with which our 'tween-decks and holds were filled, landing cartons and boxes, cases and crates, drums of cables and drums of chemicals, bags and bales, cars, lorries, personal effects, spirits, beers, foodstuffs and odd pieces of machinery. We loaded little. A small consignment of silvery tin ingots for Kobe, assiduously tallied in, and stowed no more than five tiers high 'lest their weight prove too much for even *Antigone's* massive scantlings. There were a few more odds and ends of coasting cargo for Bangkok and Hong Kong...

As the period of our stay drew to its end, the Mate's anxiety began to get through to us, for it was essential that we did not over-carry cargo, that every item consigned for Singapore was discharged there. Each compartment, from strongroom to holds the size of a parish church, had to be thoroughly searched before departure; neglect might lose us customers and bring the opprobrium of Head-Office upon our heads.

The indifferent quality of the Liverpool stow made thoroughness very difficult, though Bob and I, in the company of the Midshipmen, clambered

about the nooks and crannies of holds and 'tween-decks, our torches focusing on the marks of discharge and, where these could not be seen, turning over heavy boxes, or dragging cases aside to check. We discovered the hidey-holes of British dockers, little gambling and drinking dens set up behind false stows of cartons, where broached whisky from 'accidentally' dropped cases ended up. Usually such jerry-built dens collapsed soon after our departure from the Mersey.

As we left each successive discharging port the mass of debris, of broken cases and shredded cartons, of spillages from torn sacks, of broken dunnage, cargo mats, shattered lavatory pans or broken bottles increased; a scene of wasteful chaos that was given the occasional delightful spicing of a turd, or the dark dried stain of urine...

Next morning the Mate decided to open up Number Five hatch and inspect one of the stows of cargo. For this purpose small access hatches were provided, but the one by the main-mast, giving entrance into the 'tweendeck, led directly onto a stow of cartons. 'You're a wee, skinny fellow,' he said to me, 'away down and check the tomming.' I did as I was bid, wriggling over the top of the uneven cargo just beneath the beams of the upper deck, my boiler suit catching on every crate, and hampering my progress.

I found the edge of the stow when my torch, being pushed ahead, dropped over it and, in a stygian gloom which creaked and groaned as the ship laboured and the cargo bent to the influence of gravity, I squirmed out into the comparative freedom of the hatch to the lower 'tween-decks. Recovering my torch I played its beam on the tomming. Vertical billets of timber were jammed between the deck and deckhead, secured by wedges and with cross-members nailed to them, holding the wall of boxes remarkably secure, except in one place where a kind of 'cliff-fall' had taken place.

A few cartons had split open and their contents, some knitted fashion goods, had been strewn across the hatch. I gathered up what I could get out, secured the stow as well as possible and returned to the Mate. He took the woollen cardigans and turned them over curiously with a grunt. I could sense his irritation at the mishap, trivial though it was. 'Aye. I'll advise the Old Man to note protest when we get to Hong Kong...'

The preparations for the five hundred tons of palm oil which we expected were different. For several days prior to our arrival in Hong Kong, as *Antigone's* holds had filled with the deadweight of Borneo timber and the need to keep sea-water ballast in her diminished, the engineers had been below fitting steam coils to the emptied deep-tanks in Number Three. These coiled steel pipes were fitted with scores of flanges whose integrity had to be tested for leaks before oil could be loaded.

Steam from the ship's hot-water system was generated by the Cochrane 'donkey' boiler in the engine room and pumped through these pipes, to maintain palm or coconut oil in a liquid state as we passed to colder northern climes. Without this heat the stuff went solid, could not be handled, and had to be shovelled out, a virtually worthless mass. It was the carriage of such commodities that demonstrated the versatility of ships such as *Antigone*. Like the derricks that were hoisting aboard a few tons of tin and rubber, some bags of gum arabic and cases of personal effects, they made her a maid for all tasks. But they took labour, man- and woman-power much disliked by hard-headed ship-owners, and it was this very versatility that, among other things, ultimately condemned her class to obsolescence.

As we left Singapore through the Western Roads, a Dutch vessel of the Rotterdam Lloyd Line lay at anchor. On her long foredeck were half a dozen grey aluminium boxes at which China Dick stared with unconcealed curiosity. 'What the devil are they?' he asked the Pilot. 'They're containers, Captain,' the Pilot replied, and no one on the bridge heard the sentence of death pronounced upon us.

Richard Woodman

Voyage East, A Cargo Ship in the 1960s (1988)

Winchman's warmth

We recently spent an afternoon at the Royal Seaforth Container Terminal, one of the world's biggest general user terminals and able to handle four large container ships simultaneously. The whole terminal abounds in high technocracy, with its computer terminals capable of controlling the movement and documentation of no less than 13,000 containers, its thirty giant straddle carriers busily employed, and even in the consolidation sheds every imaginable mechanical aid was being used to stuff and 'un-stuff' the containers. We felt that a docker with a cargo hook would probably be arrested for possession of an offensive weapon.

I remembered, in contrast, a visit to the port some years ago. A grim December day with freezing fog on the Mersey and the gangs demanding lights below in the hold in the early afternoon. We had fixed up all the cargo lights during the forenoon and I was somewhat surprised at a torrent of abuse from the Mate at the alleged deficiency of lights at No 5 hatch. A quick look down the hatch confirmed the black picture. On that rather decrepit ocean greyhound, all the cargo lights were portable and plugged into the masthouse, so it was an easy job to check. Six lights were plugged in and switched on.

I traced the wires which led, not down into the hatch, but under the voluminous folds of the gigantic ex-army greatcoat worn by the diminutive driver of the starboard winch. A cloth cap, muffler and about fifty yards of scrap canvas completed his rig for the day and only a red nose and a pair of beady eyes indicated that a human being was simmering under this heap of old wrappings and the electric warmth generated by about 3,000 amps.

I remonstrated with the individual as to his selfish attitude in monopolising the entire light allocation for the whole gang. The pile of gently steaming coverings shivered slightly, the only reaction to this tirade. It spoke: "What does yer effing well expect me ter do, wacker, freeze to the deck?"

I looked up at the Seaforth container cranes last week, but the driving cabs were too high to see whether there was an ex-army greatcoat and half a tarpaulin up there. It was summer anyway.

Chris Hewer and Michael Grey

On the Rocks – Tales of Shipping and Insurance (1982)

Weighty matters

The company I used to sail with were, by today's standards, pretty small beer where heavy lifts were concerned, but when we had the jumbo rigged, all hands and the cook were pressed into service as constant vigilance was essential. On one occasion in Newport News we were loading 50-ton tractors into No 2 hold using the ship's antiquated jumbo, which depended on a quite unbelievable cat's cradle of a double endless topping lift driven off two cargo winches; the purchase, driven by a massive auxiliary drum on (believe it or not) the windlass; and about six steaming guys and preventers which used just about every cargo winch on the foredeck.

As most people who have ever been to the US coast will know, US

dockers only recognise 'Stop' and 'Flat out' as legitimate orders and the tractors were coming aboard almost as fast as two-ton pallets. The trouble began when one of the winch drivers on the topping lift had an attack of hay fever (he alleged) and blinded by tears, ran all the wire off his drum onto the drum of his companion.

This unfortunately coincided with a 50-ton tractor being at its very highest above the wooden wharf, with the guys just taking up the weight, when the last two turns of the topping lift came off the drum. The derrick fell about five feet, paused as the futile little bulldog clip momentarily jammed in the top block, just providing a split second for the winch driver to escape a messy death by leaping with a shrill scream down the hold.

I can see the subsequent events like one recalls an old movie – in slow motion..., the jumbo, in a gigantic shambles of twelve-fold purchases and four-inch wires, falling with an enormous crash on top of the vacated winch, smashing it flat, bouncing up into the air and tearing its heel, complete with gooseneck and a four-inch steel pad, clean out of the deck. Overside on the wharf there was complete bedlam, the tractor having fallen, at a conservative estimate, about thirty five feet and driving straight through the deck of the wharf like a multi-point pile driver. Only the roof, itself smashed in by the top block of the purchase, was to be seen above the level of the quay.

Miraculously, considering there must have been at least twenty stevedores and almost the same number of earnest supervisors around at the time, not a soul was hurt, but on board ship there was, for a moment, blind panic, with some fifty gigantic dockers, squealing like pigs, all trying to get off the foredeck at once.

'We fail to understand,' said the cable from the owners, 'why the ship is delayed in departing Newport News.'

'It was not so much delay,' said the Master that evening, 'more a matter of re-assembly.'

Chris Hewer and Michael Grey

On the Rocks – Tales of Shipping and Insurance (1982)

In the beginning

To many, containers are a modern phenomenon of the last thirty years. That view would be strengthened by events such as the banquet held at the World Trade Center, New York, on 5th May 1981 to mark the 25th anniversary of the container! But it is well to heed Solomon's words 'There is nothing new under the sun' (Ecclesiastes Chapter 1, Verse 9) and examine what went before.

For centuries land transport was paralysed by bad or non-existent roads. Travel by water was both cheaper and more comfortable. In Britain the problem was eased by the building of a rail network during the reign of Queen Victoria. To this the 20th century added tarmac surfaced roads. Within a century a transport infrastructure was developed enabling an enhanced standard of living to be achieved. Britain may have led in this aspect of the Industrial Revolution. Other nations followed close behind.

Some problems remained, such as the need to change from one mode of transport to another or to overcome obstacles. Transhipment gave opportunity for both pilferage and damage, also causing delay. Prevention occupied many minds, leading ultimately to the intermodal door-to-door container.

Identifying the first true container, whether of the closed, open, tank or flat variety, is difficult. Some would postulate the amphora of antiquity or the barrel of medieval times on the basis of their being re-usable. I have my reservations, and prefer to look for the container which can be recognised in the modern sense.

Illustrations and specifications to confirm early containers are lacking, but pre-railway tramways are known to have employed containers or boxes which were moved from rail wagon to road vehicle for onward transit. Amongst those identified have been the Horsehay Tramway in Coalbrookdale (1792), the Peak Forest Tramway (1797) and at Waldenburg in Silesia. Traffic handled was mainly coal, lime and limestone.

When the Liverpool and Manchester Railway opened in 1830, coal was handled similarly in containers. However, the use of containers on this line went further. To quote the history by RHG Thomas:

"...Pickfords, established in 1646, began their long and close association with the railways on 22nd November 1830, when their offer of a trip for one "contract waggon" was accepted. This wagon had a movable body which was transferred between a horse drawn dray and a flat railway truck at each end of the line..." Although small in size by our standards, these containers must be placed in the context of their age. A five-ton capacity rail wagon was a large vehicle and decades were to pass before the dominant size passed the ten-ton load mark.

The interest in containers can be gauged from patents issued to inventors. For example in 1845 Captain Henry Powell was granted a British patent for a system of roller guides for the transfer of containers from road to rail, whilst in the United States Joseph Woodbury patented his "freightcab" (a container system) in 1869.

The need for intermodal capability was early addressed by the household removal trade, handling goods highly susceptible to damage and having a complete lack of homogeneousness. They introduced, in the second half of the 19th century, furniture lift vans capable of being lifted on and off railway wagons and placed on horse drawn drays for road transit. Although this provided a true door-to-door ability there still remained the problem of versatility due to lack of standards. Dimensions varied between vans and different railway loading gauges would limit the passage of certain vans, whilst cranage capacity in railway goods yards dictated the ability to move onto road.

Although the Great Western Railway's 7ft broad gauge was viewed with disfavour by the Gauge Commission in 1846, the final stretch was not regauged until 1892. Until then containers were used to overcome the break of gauge between the Midland and Great Western systems. Other railways made containers available to customers, such as the 19th century 'Lancashire flat' for the transport of bales of cloth and yarn between Lancashire towns. The Lancashire & Yorkshire Railway (L&YR), and some Lancashire collieries, employed open containers for coal traffic.

The L&YR were also joint owners, with the London & North Western Railway (LNWR), of a shipping service from Fleetwood to Ireland for which containers were introduced in 1920, carrying 1.5 tons each from London to Ireland. The following year the LNWR introduced boxes on their service to Ireland via Holyhead.

In the United States similar development took place. Early in the 19th century the trade in ice from Boston to the West Indies was reportedly carried in containers. A national and international container service commenced in 1906 and five years later featured an advertising campaign depicting a container being loaded onto ship using the vessel's own gear, captioned: 'Lift-vans can be provided for immediate loading in any city in

the United States or in Europe. Their use ensures a minimum of handling, security for small packages and least possible risk of damage.'

The container was surprisingly modern, of steel construction measuring 18ft x 8ft x 8ft and owned by the Bowling Green Storage & Van Co, New York. In 1917 Benjamin Fitch introduced containers in Cincinnati to expedite the economic handling of Less-than-Car-Load (LCL) traffic between the various railroads and their terminals in the city, a service which continued until 1962. Many major American railroads followed, adopting containers for LCL traffic. These included the New York Central, Baltimore & Ohio, Pennsylvania, Lackawanna and Wabash Railroads. The true potential of the container as an intermodal unit was not achieved, as cooperation between rail and road was discouraged by the Interstate Commerce Commission in the sacred name of competition.

In Europe the 1928 World Congress for Motor Transport in Rome advocated containers, two years after the London, Midland & Scottish Railway, followed by the other British railways, introduced a range of containers with capacity up to four tons, developed from the L&YR and LNWR series mentioned above. By 1939 over 15,000 were in use with a peak of over 50,000 on British Rail in 1960, after which numbers started to decrease with the impending birth of the Freightliner and ISO containers. They had proved popular for traffic to Ireland, where the break of gauge (Ireland is 5ft 3ins gauge) influenced the decision not to adopt train ferries. In 1954 British Railways recorded the shipment of 48,000 containers to Ireland, 5,800 to the Channel Islands and 11,000 to Europe.

The railways were not the only box-orientated operators in Britain. In 1949 Anglo-Continental Container Services Ltd was formed and developed a ten-ton capacity aluminium container for traffic between Northern Ireland and Britain. In 1956 it chartered the *Clipper*, hailed as the first ship designed for the exclusive carriage of containers.

Meanwhile, in North America the road haulage industry was developing a pace. Although state regulations varied, lengths increased to over 40ft, width was about 8ft and heights reached over 13ft. To enable rail to retain trade, the 'piggy-back' concept was developed, road semi-trailers being loaded up 'circus ramps' and along railway flat wagons. Shipowners in the coastal trades were also interested.

In 1928 Seatrain Lines had commenced a train ferry service to Cuba, to which were added coastal routes from New York to the Gulf. To carry road trailers was but a small step and led in 1957 to the introduction of Seatrain's 35ft 'Seamobile' containers. Removing the wheels was another simple step saving money. They served no useful purpose on board ship or train, occupied space and were liable to damage.

In 1955 Malcom McLean, a North Carolina road haulier, diversified into shipping with the purchase of the Pan-Atlantic Steamship Corporation, followed shortly by the Waterman Steamship Corporation. The following year trials commenced with 33ft x 8ft x 8ft containers carried on the decks of the Pan-Atlantic T2 tankers *Ideal X* and *Almeda. Ideal X* took the first sailing from Port Newark NJ to Houston on 26 April 1956, the 25th anniversary of which was marked by the banquet mentioned in the opening paragraphs, with 58 containers and her normal liquid cargo.

The conversion of six Waterman C2 cargo ships into containerships followed in 1957-1958 after which the tankers ceased to carry containers. This traffic was entirely within the United States domestic market. Another C2, *Santa Eliana*, became in 1960 the first containership in US foreign trade, carrying Grace Lines' 'Seatrainers' on their service from New York to Venezuela. In 1960 Pan-Atlantic was renamed Sea-Land Service Inc and continued to develop as a major force in the international container field.

On the West Coast Matson Navigation, specialists in trade between California and Hawaii, set up a study of Hawaii's freight problems in 1956. The following year containerisation was recommended and started with 24ft boxes on the deck of their C3 class freighters before moving on to fully cellular ships. On 31st August 1958 *Hawaiian Merchant* sailed from San Francisco with the first shipment of containers, whilst in 1960 her sister *Hawaiian Citizen* became the first full containership in phase 2 of the programme. Both Matson and Sea-Land have, due to the heavy investment made, retained some capacity for non-standard box lengths (24ft and 35ft respectively) after the adoption of American and International standards.

The introduction of containers posed problems to operators due to the heavy weights involved. Ships' derricks were often only of five ton lifting capacity, and many big ships only had one or two special heavy lift derricks of 25 tons or more. The stowage of containers also resulted in lost space due to the design of the ship, hatches and other structural features. Economic and widespread use of containers would require completely new designs, stowage arrangements and provision of heavy lift gantry cranes ashore; a complete re-equipment programme at heavy cost.

The need for standards was also clear, and was called for in 1953 by the United States Federal Co-ordinator of Transport. In 1959 work started in America and two years later the American Standards Association (ASA) adopted an 8ft x 8ft cross section with lengths of 10ft, 20ft, 30ft and 40ft. The same year, 1961, the International Organisation for Standards (ISO) established Technical Committee 104 on Freight Containers. Starting with ISO standard R668 on dimensions and ratings in 1968, the Technical Committee proceeded to adopt, and subsequently update, a series of recommended standards based on those adopted earlier by the ASA, covering all aspects of containerisation.

Shipowners in liner trades worldwide were seeking to improve cargo handling. Since World War II increasing unionisation resulted in strikes and restrictive practices, delays to ships and consequent financial loss and difficulty in meeting commitments. Containerisation was seen as the means of overcoming those problems, even though this change from a labour-, to a capital-intensive operation meant heavy investment in new ships and cargo-handling equipment, and also effectively the building of new ports to berth the new giant container ships.

In addition to ISO containers, the shipping revolution spawned the barge carrier. Opinions differ as to whether barges should be included under the box heading, hence this reference will be brief and I leave the reader to decide. Some owners opted for this line of development, which avoided building new ports, the ships lying off in deep water lifting or floating off barges to be handled by tugs. Discharge of barges could be in old, shallow water ports, or they could be moved through inland waterways to final destinations.

Barge sizes varied from Bacat (140 ton capacity) through Lash (370 ton) to Seabee (850 ton). The first barge carrier into service was the Norwegian *Acadia Forest*, 1969, chartered by Central Gulf Lines of New Orleans. Although the barge carrier was to be seen in many areas of the world it had only limited acceptance, even though as I write there are reports of a new series to be built for Hungarian owners. Barge carriers also handled containers and some were later fully converted into containerships.

Owners did not wait for the ISO standards to be issued. Companies like Sea-Land and Matson moved ahead, whilst in Britain 1965 saw the formation of Overseas Containers Ltd (a consortium of P&O, Blue Funnel, British & Commonwealth and Furness Withy), followed by Associated Container Transportation Ltd (Blue Star, Port Line and Ellerman Lines). Early in 1967 Overseas Containers ordered six 1,500 TEU container ships, the first of which entered service in March 1969. Progress thereafter has been rapid, with a widening range of container (refrigerated flat, high cube) being made available. The network of container ports and terminals has grown, connected by a world wide web of main line and feeder services by sea, rail and road. The ships also have grown, the early giants overtaken by generations of development with 5,000 TEU post-Panamax ships under construction and 6,000 TEU giants on the drawing board.

Sadly, Pickfords' container from the Liverpool & Manchester Railway of 1830 has not survived. Today it would be a treasured possession of a museum and give a wonderful insight into the changes that have taken place in the transport industry in less than two centuries.

David Burrell December 1994





EARLY DAYS

The man who put boxes on ships

As Malcom McLean recalls it, the idea that revolutionised cargo handling the world over and forever changed the nature of shipping came to him one day back in 1937 on a pier in Hoboken, New Jersey.

'I had driven my trailer truck up from Fayetteville, North Carolina,' he relates, 'with a load of cotton bales that were to go on an American Export ship tied up at the dock. For one reason or another I had to wait most of the day to deliver the bales, and as I sat there, I watched all those people muscling each crate and bundle off the trucks and into the slings that would lift them into the hold of the ship.

On board the ship, every sling would have to be unloaded by the stevedores, and its contents put in the proper place in the hold. What a waste in time and money! Suddenly the thought occurred to me: wouldn't it be great if my trailer could simply be lifted up and placed on the ship without its contents being touched? If you want to know, that's when the seed was planted.'

The process he was watching was known as breakbulk shipping, and it was the way general cargo – as opposed to such special items as bulk oil, grain, and iron ore, which had begun to develop their own systems – had been handled for centuries. Individual packages, drums, sacks or pieces of machinery being sent by a manufacturer in Milwaukee, say, to customers in Paris or Munich, would be manhandled over and over: first when it was put on a truck at the factory, then again when it was transferred to a railroad car, again when it was taken off the railcar and trucked to the pier, again when it went into the cargo sling, and so on – with the whole process reversed at the receiving end.

Losses due to damage were endemic, as was outright pilferage, a 'fringe benefit' openly negotiated by longshoremen, while others like ship's crew and dock gate watchmen all got their share.

McLean's pre-war brainstorm, which became known as the Container

Revolution, changed all that. In the new container era, a shipper could pack his big metal 'box' or 'van container' in Milwaukee and be assured that it would travel by truck, rail, or cargo ship – in any combination – and not be unpacked or the contents otherwise harmed until it reached his customer in Europe.

The notion that one jumbo cargo box would be handled interchangeably by any carrier was a radical one. The new system was not only safer, but faster and much cheaper, as it drastically cut ship turnaround time (needing fewer ships and crews) and ports became enormously more productive, slashing the labour and insurance costs on every ton of cargo. It was also secure: sabotage and other perils were much less likely.

In the end it brought about new kinds of cargo ships and dockyard machinery, changed the look of port cities, challenged organised labour, altered domestic transportation methods, and even affected the patterns of world trade. 'The gains are so dramatic,' said Nation's Business in 1970, 'that they are being hailed in the shipping industry as the equal of the transition from sail to steam, from wood to steel hulls.' In the words of the former Citicorp chairman Walter Wriston: 'Malcom McLean is one of the few men who changed the world.'

Now eighty and, astonishingly, still active in shipping, McLean is virtually unknown to the public and hardly acts the role of one of America's most notable pioneering entrepreneurs.* Indeed, for most of his career he has studiously avoided publicity and rarely granted interviews: his entry in World's Who's Who in Commerce and Industry for 1967 was only two lines long, merely listing his name, business affiliation and office address.

Alternately courtly and folksy, he is given to declaiming aphorisms like 'Price runs the world' and 'You can't do anything with the ground unless you move it.' But his down-home manner masks a formidable intelligence, a self-assurance worthy of a professional gambler, and a truly creative imagination. 'Putting new ideas into effect,' an associate once remarked, 'is Malcom's way of life.'

At the core of his intellect is an ability to see things in the simplest possible terms. 'You know what freight is?' he will ask a visitor. 'You can look it up in the dictionary, but I'll tell you. It's something added to the cost of the product.' All his life he has worked to make that 'something added' as low as possible, starting not long after graduating from high school in 1931, in the depths of the depression, when he bought a secondhand pickup truck to haul dirt and farm products in and around his hometown of Maxton, North Carolina. Working around the clock, he soon owned half a dozen trucks and a crew of drivers and was carrying textiles north to Philadelphia and New York. There were plenty of bad times, as during the winter of 1936, when blizzards and ice storms brought accidents and contract cancellations that almost wiped him out (and forced him to go back to driving, accounting for his being behind the wheel that day in Hoboken). But by 1940, stressing efficiency and safety, he was operating thirty trucks and making more than \$230,000 a year, and by 1950 the McLean Trucking Company, headquartered in Winston-Salem, was recognised as one of the most successful transport organisations in the United States.

With seventeen hundred employees and thirty-two terminals nationwide, the company was grossing \$12 million a year. During all that success McLean had not forgotten the idea of hoisting trailers onto ships, but there had been no chance to try it. To be sure, there had been attempts by others to do more or less what he had in mind. An outfit called Seatrain Lines had been carrying railroad cars on specially converted ships in the Atlantic even since 1929, and others had ferried trailer trucks over short distances but none of these efforts had brought widespread repercussions.

What prompted McLean to make his historic move was a desire to outflank the railroads, which in the early 1950s were fighting the newly successful trucking lines by all manner of rate-cutting ploys. At first he tried to make a deal by combining with them, and he approached Southern Railways with a plan to put trailers on flatcars: the same trailers would be capable of being driven onto ferrylike ships, and McLean made a full-scale mock-up of a ship's interior to work out the details.

Southern thought the idea had little merit. OK, McLean said, if he could not join them, he would fight them. He noted that oil tankers plying between Houston, Texas, and the North-East not only had space available above-decks when loaded, but that they normally returned to Texas carrying only ballast. Trailers carried by such ships would get to their destination far more cheaply than if they were driven over the highway. That was the key: lower cost. 'The whole thing sounded so obvious and natural,' McLean recalls, 'that I felt I had to try it. I kept saying to myself: what if someone else does it and I don't?' True, he knew next to nothing about ships. 'As a matter of fact,' he says with a laugh, 'I had never even been on a ship up to this time. You know, it's often the people who know all about something that say it can't be done. I was totally ignorant, so I said, 'Why not give it a try?' He purchased a small tanker company called Pan Atlantic and adapted two of its ships by erecting a platform for trailers above the oil-pumping apparatus. Each ship could carry 58 trailers, and the first of them, the Ideal X, sailed from Port Newark, in New York Harbour, on 26th April 1956, a day that is universally recognised as the beginning of the modern container era. It was a genuine beginning because Malcom McLean had actually not put ordinary trailers on the Ideal X. With uncanny foresight he had already made the next logical move. Conventional truck trailers, he reasoned, are built for highway travel, but a box going on a ship needs to be stronger, not only to withstand the stresses of ocean travel but to be stackable; he already saw the desirability of stacking boxes four, five, or even six deep inside a ship's hold. Furthermore, as engineers working for him had noted, it made no sense to carry a trailer's wheels aboard a ship because they used up valuable space and, if above decks, made for increased wind resistance. So McLean ordered steel boxes made with sturdy corner posts: the boxes could be mounted on chassis (supporting steel frames with road wheels) for highway travel but would divest themselves of these when going aboard a ship or even when travelling on rail flatcars. At this point his staff still called the boxes trailers, and the Ideal X and her successors were called trailer-ships. Moreover, the boxes conformed to a trailer's dimensions, being 33 feet long (the maximum allowed at the time on US highways), eight feet wide, and eight high.

Due to his insight, McLean had invented something entirely new: the simple tools of this century's greatest revolution in surface transportation; containers, road chassis, and suitable container-stacking ships.

The *Ideal X* venture was a success, and soon McLean was running four converted tankers in the coastal trade. Meanwhile, he had been forced by the government to make a crucial decision. Not long after acquiring Pan Atlantic he had also purchased, for \$42 million, the Waterman Steamship Corporation, which had previously owned Pan Atlantic. Waterman was attractive to him because – here he was thinking ahead again – it not only possessed cargo ships that could be converted for carrying containers, but owned all the additional docking, shipbuilding and repair facilities that an expanded endeavour would require.

To guide both Pan Atlantic and Waterman, he created a new entity, McLean Industries. But his moves alarmed the railroads, which complained to the Interstate Commerce Commission (ICC). And the ICC responded by telling him he must choose between trucks and ships. Never afraid to take a risk, McLean sold his old trucking company and threw in his lot with the new seagoing venture. In 1957 he made his next move, shipping containers in vessels specifically converted to carry boxes and nothing else. Whereas the *Ideal X* and her sister ships had been loaded by shore-based cranes, the new craft were equipped with their own gantry cranes that could pick up boxes from the pier (hoisting them via fittings on their top corners) and lower them into what were called cells – subdivisions of the ships' holds – kept aligned by vertical guide rails. The new vessels could carry 226 boxes, which were now 35 feet long to conform to new highway regulations. Many of the boxes were being made by the Fruehauf Corporation, which was already known for its truck trailers and which got the lion's share of McLean's trade: by 1968 Fruehauf had sold \$175 million-worth of containers to McLean.

Pan Atlantic continued to operate, during the mid-1950s, out of Port Newark, but as early as 1956 the Port of New York Authority (as it was then called), had with remarkable foresight recognised the significance of McLean's ideas. Spotting an extensive piece of marshland in Elizabeth, New Jersey, next to Port Newark, it began work on a huge new facility to be called Elizabeth Port Authority Marine Terminal, dedicated exclusively to container ships.

Word of McLean's success was getting around elsewhere too, and a few more steamship lines tried containerisation. Among other things, they were impressed by the speed of the new system: whereas under the breakbulk method a conventional cargo ship would lie in port for six or seven days while it was partly unloaded or loaded, a container vessel could arrive in port in the morning and be ready to sail again by nightfall. What's more, a container fresh off a ship could be put on a chassis, hitched to a truck tractor and, literally within minutes, be rolling on its way down an interstate highway, on the last stage of its door-to-door delivery to the customer.

The most notable of the new entries was the Matson Navigation Company. Serving Hawaii from the West Coast of the United States, Matson began a container service in 1959, with 24-foot long boxes that it loaded using big shore based gantries made by PACECO (Pacific Coast Engineering Company). A crane on land, Matson reasoned, could be far larger and stronger than one on a ship and would also free up space needed aboard for stowing the boxes themselves. Land-based gantries would be the only significant element in the entire new process that was not developed by McLean and his staff.

The railroads were now showing interest too, and some of them began offering a piggyback service, carrying trailers on flatcars. The New York Central Railroad took the idea one step further and introduced the Flexi-Van service, with outright containers loaded by fork lifts onto railcars.

Around this time, Malcom McLean reasoned that the name Pan Atlantic was inadequate. The new, more descriptive name he hit on was Sea-Land Services, and since then the Sea-Land logo has become a familiar sight on the nation's highways. McLean himself was also becoming better known, at least in shipping and finance circles, though he refused to let it affect him. In 1959 the American Legion voted to bestow its Merchant Marine Award on him, but when the awards dinner was held, McLean inexplicably failed to show up. Queried by the Legion, he said, 'I'm sorry, I just forgot.' Undaunted, the Legion decided he could attend the following year, and when he did and explained to his fellow guests that in 1959 he had simply forgotten to come, they gave him an ovation.

By the early 1960s Sea-Land had become a major force in US shipping, and although its rapid expansion during its first years had brought substantial losses, it was now announcing respectable profits, earning \$3.4 million in 1961 and more the following year.

One might have thought that the rest of the shipping world would rush to convert to such a convenient system, but while the container era had undeniably begun, the Container Revolution had not yet occurred. Most of the biggest shipowners were hanging back. Part of their reluctance was sheer caution. Shipping had always been a risky business: why make it even riskier? Most industry leaders had large amounts of capital already tied up in conventional ships and shuddered at the likely cost of new vessels and extra unfamiliar equipment (steel containers, for example, cost \$1,500 apiece in 1962, and a deepsea line would need thousands of them). Change might be inevitable, they thought, but it should be introduced slowly, not all at once.

Furthermore, many were apprehensive about organised labour, which was well known for its ability to tie up the waterfront for weeks and months on end whenever it felt threatened. When Grace Lines tried to start a container service to South American ports, stevedores there had refused to work the ships, and the whole project had to be cancelled. Union leaders knew that containerisation was a form of automation, which meant fewer jobs for their members, and they were already manoeuvring to meet the perceived challenge.

Finally, mainstream shipowners believed that McLean's business was untested on an international scale. Sea-Land had been engaged only in the US coastal trade, which was protected from foreign competition. Moreover, McLean had never sought or received any kind of subsidy from the US Government. Deepsea shipowners were under-girt by all manner of government subsidies. Mark our words, the oldtimers said, Malcom will stumble badly if he ever attempts to go overseas.

But that happened to be exactly what McLean had in mind – 'It was the logical next step,' he says – and when his bold move paid off, the revolution finally did take place.

In his customary fashion McLean had prepared the ground carefully. Merely shipping containers to Europe would not do: a network of agents would be needed to sign up customers and provide for return cargoes. Sea-Land accordingly set up a sales organisation covering the Continent. And who would move the boxes in foreign countries? McLean signed up 325 European truckers. Finally, he would need at least one containerport, and he started with Rotterdam. To oversee its construction, he hired a young Dutchman named Frans Swarttouw, who had heard about Sea-Land and said he wanted to help.

While McLean was swiftly moving ahead with his plans, he was not universally welcomed. When the new Rotterdam facility was completed in 1966, McLean and Swarttouw threw a party on the premises and were dumbfounded when their guests, comprising many of Holland's top shipping fraternity, actually booed them. Swarttouw broke into tears, but McLean took it in his stride and vowed to go ahead. Rotterdam today is one of the world's premier container centres. (And Swarttouw, who recovered soon enough, eventually became the chairman of Fokker Aircraft.)

Inaugurating the first transatlantic container service was Sea-Land's SS Fairland, which cast off from Port Elizabeth in April 1966. The voyage astonished the shipping world: cargo sent to Europe arrived at its destination fully four weeks faster than its equivalent had before. Sea-Land's cargo bookings mushroomed, especially after the makers of Scotch whisky transferred a large part of their business to the line (alas for the stevedores' fringe benefits). Cost savings proved dramatic as well, and McLean began running ads in trade papers that said, 'Use Sea-Land and we'll ship your goods for free,' meaning that the money saved from extraneous packing and other unnecessary charges would pay a company's entire transportation bill.

The argument was now manifestly irresistible, and those who had previously expressed doubts gave in. One by one the big shipping lines on US trades began moving into containerisation. American Export Isbrandtsen, Moore-McCormack, and United States Lines all announced new transatlantic services, and Matson extended its container business to Japan. European carriers responded by forming a joint container venture, Atlantic Container Line, which comprised Cunard, the French Line, Holland-America, and three from Sweden (Swedish America, Transatlantic and Wallenius). Two well-known German lines formed a liaison, which was to become Hapag-Lloyd.

Enthusiasm for the new mode became rampant, and while many owners were worried about where it all might lead, there was also, among the Americans, a feeling of pride that the revolutionary development in overseas trade was homegrown: it had all come about because of the efforts of a former North Carolina trucker, and the US merchant marine could once again hold its head up. Everyone marvelled at the convenience of what McLean had wrought. As a German writer put it, containerisation was 'the greatest stride in packaging since the paper bag.'

Oliver E Allen

Audacity (1994) *Editors note: sadly Malcom McLean passed away in May 2001 (2006)

Tall slippery story

In 1974, during the research and development phase at Overseas Containers Ltd, there was an enquiry to utilise tank containers for the carriage of live eels from Australia to the UK.

Seven tonnes of eels in an equal amount of water. On the face of it, an easy exercise! In the event, the Torry Fish Research Station in Scotland advised against the project, as the water would have to be circulated (easy enough to do in a ship), but that eventually some of the eels would die, thus providing a food source for the others. After a while, it was thought, the eels would stop noticing whether the food source was dead or alive, and the likelihood was that on arrival in the UK the tank lid would be opened and we would be faced with one seven-tonne eel the approximate size of the Loch Ness Monster.

Gerry Askham 1994

The man who invented 'TEU'

Any documented history of containerisation would be incomplete without mention of R F Gibney, for so many years the chronicler of all things containerised.

Richard was a complex person who had as many enemies as he had friends. His ability to upset people was legendary, yet he still won profound respect for his knowledge of the container industry and the fervour with which he promoted its cause. At times this was little short of fanatical.

Richard came to journalism in the 1960s as a staff member of Shipbuilding & Shipping Record, compiling tables of ships ordered and completed. This required a statistical discipline which was to prove a characteristic of his work in later years, even though he had no formal training in that area.

Perhaps this lack of training was the key? Richard challenged accepted premises and created his own units of comparison. Unhappy with statistics that measured shipbuilding output in terms of tons gross or tons deadweight, he developed the concept of compensated tonnage, whereby a factor was applied to reflect the work content and value of a particular vessel. Richard was not content to have a large fast containership compared with a bulk carrier simply in terms of tonnage.

In 1969 he needed to compile container vessel statistics at a time when container sizes were anything but standard, with 24ft (Matson) and 35ft (Sea-Land) boxes still forming a large part of the world fleet. Richard created the term 'Twenty-Foot Equivalent Unit' or 'TEU' as a measure of comparison. Today it is routinely used worldwide and it is hard to believe that a young journalist, working in cramped offices in an unfashionable part of London, was responsible for its origination.

To Richard, it was crystal clear that you could compare various vessels in terms of their carrying capacity by calculating how many 20ft containers they could in theory carry if all of their hold and deck space were to be given over to this standard box size. So, for example, in 1972, he could tell you the TEU capacity of his beloved SL-7s, even though Sea-Land had configured these unprecedentedly fast and powerful deepsea ships to carry other container sizes.

By 1970, Richard had moved on to join a start-up publication which was referred to by many contemporaries (who did not think highly of its prospects) as 'that new Greek magazine in Colchester.' Of course few at that time knew of Themis Vokos or appreciated quite how much determination (and backing) he had. Nevertheless, the success of Seatrade was built on the ability of the writers Themis gathered around him, and Richard was a key signing.

An article in the March 1972 edition of Seatrade saw Richard using TEU in an article on Trio; there were still precious few other writers using the term. Richard's time at Seatrade was always turbulent; he was never meant for a quiet life. In 1973, he was hired by Containerisation International (CI) at the suggestion of the magazine's leading staff writer, Jane Boyes, and became editor with effect from the June 1973 issue. He arrived from Colchester clutching a Sinclair Calculator, a gift from his Seatrade colleagues and, at $\pounds 30$ or so, still a rare sight on an editorial desk. Richard made excellent use of it.

Up until that time CI had been oriented towards the equipment side of containerisation. It had been thrown into a spin when most of its staff quit to form Cargo Systems, and that was a signal to change direction. Richard wasn't so interested in hardware; neither was Jane. They were both interested in liner shipping, though, because liner shipping was fast falling prey to the concept of containerisation. As Richard took charge, CI was soon being read by both sides, containerised and not. One of his first headlines was: 'Pigs might fly', as container-doubting Maersk Line went 'whole hog' and ordered nine fast containerships for the New York/Far East run.

Thus, for the first time in its century-plus history, the liner shipping industry had an international magazine devoted to reporting on its progress. Richard took to the task with a degree of single-minded commitment comparable to that of a religious zealot.

The religious comparison is appropriate, given that Richard was determined all should espouse the container concept in its purest form, namely carriage by cellular container vessel. He saw companies like Cast, which carried containers in non-cellular bulk carriers, as being misguided. As for ro-ro operators, they were the heretics of the container industry. Oh ye of little faith.

Despite the fact that one of Richard's favourite recollections was being driven, as part of a press party, through city streets in a cavalcade of coaches that only paused once they were deep within the cavernous hull of one of the world's first deepsea ro-ro vessels, he so disapproved of horizontal loading methods that all mention of ro-ro was banned, especially the shortsea variety. He best liked to develop his arguments during lengthy sessions at a nearby pub, until one time he decided to prove the efficacy of modern (at that time) cable seals by demonstrating their use on the publisher's company car. Since that person didn't carry bolt cutters in his executive brief case, he was not amused! Richard's perverse and puckish nature was legendary. Just as he delighted in losing PACECO's advertising through the reporting of a crane collapse, so did he derive particular pleasure from a suggestive CI front cover depicting a group of decidedly 1960s miniskirted girls riding on a forklift truck pallet: the story line was on the subject of container 'stripping and stuffing.'

Richard loved to analyse vessel sailing schedules and would check arrival dates against published schedules with phenomenal diligence. He could prove that Sea-Land did manage to maintain a 14-day roundtrip time on the North Atlantic with its 33-knot SL-7s, even if Bremerhaven had to be skipped occasionally. Atlantic Container Line once offered him a trip to the US on what turned out to be one of its older ships (Richard hated to fly). His initial shipboard panic of how to survive without newspapers – a common phobia among journalists – was solved on discovering that there are always crew about, and therefore, there is always a card game somewhere.

As long as there were companions around with whom to talk, smoke and drink, he always found it hard to quit, and the continuous 24-hour ship's routine caused him to run up a hefty bill for cans of Heineken beer – this was a Dutch ship – especially since the beer cans also doubled as on-board tokens for gambling.

The shock came when Richard discovered that the ship didn't run at the speed stated in the CIYearbook; indeed the chief engineer doubted whether that speed had been achieved since its original sea trials! Suggesting later to a top ACL executive that they had the slowest ships on the North Atlantic, he was told to ask US Lines what their ships' top speed was!

This threw into doubt many of Richard's statistical exercises where he assumed people were being honest when they said their ships operated at 21 knots or whatever. The fact that the ship also drifted in mid-Atlantic for 24 hours because a strike had caused berth congestion on the US East Coast, further opened Richard's eyes to the real world of ship operations. The chief engineer chose this as an alternative to two days at slow speed, to avoid sooting up his turbo chargers!

CI was at that time under pressure to run conferences; Richard wasn't in favour and killed the idea stone-dead each time by declaring at meetings that the only subject he was prepared to consider was a conference on conferences. Since his hapless publisher had insufficient grasp of the shipping industry to understand that Richard was talking about shipping conferences, and no one was prepared to enlighten him, least of all Richard, these meetings were invariably rather short.

Richard was by this time burying himself in statistics and, in some eyes, producing fairly turgid material. However, many readers appreciated his efforts, if only that they provided the sort of independent authoritative statistical data which today is only available at substantial cost from less questioning consultants.

Richard departed CI rather abruptly in 1979 when he decided that the nuclear threat was much greater in London than in the county of Dorset in Southwest England. He moved there also to be closer to his beloved Thomas Hardy, whose novels he knew by heart, but departed again when, having secured a job on a local newspaper, he insisted on calling the editor – in a word – incompetent!

Next Richard headed off to Dumfries and Galloway in Scotland, one of the least populated parts of the United Kingdom and clearly even less under threat from nuclear attack. Those who pointed out that it was in close proximity to some very significant nuclear energy waste sites were not warmly received. Nor had he calculated on the incessant Scottish rain.

From this hotbed of containerisation, Richard launched Container Insight, a newsletter full of statistical data and company/trade analysis. It was somewhat ironic, given his opposition to the ro-ro concept, that his partner and backer was Ron Sim, promoter of the highly successful ro-ro trade conferences and exhibitions.

Only the fax made such a venture possible, since the location, the village of Dairy, was so remote. Richard was constantly heard to complain that couriers took so many days to convey documents from American President Line in California or Sea-Land in New Jersey. How inconsiderate of these operators to be located so far from bonnie Scotland.

Many issues of Container Insight were highly contentious, such as 'Evergreen: On and on and on' which followed Richard's journey south to attend a press conference in London hosted by the Taiwanese line's chairman,Y F Chang. Richard found it too much to swallow that Evergreen was really going to curtail its phenomenal growth and he said so in print, creating much green ire. While one can understand Chang's wish not to provoke his contemporaries by admitting he had further growth in mind, the article still stands as a classic example of Richard's perceptive and uncompromising style. He continued to write until when, on another rare visit to London, he suffered a massive heart attack and died alone in his hotel room. He was 44 years old.

David Cheslin 1994

Apples and pears

In the early days many sceptics believed that containerisation was doomed before it began. I worked in Overseas Containers Ltd's London-based Cargo Department, and my duties included co-ordinating and guiding the techniques and philosophy of carrying cargo safely in containers.

The first of the Australian box boats started to come on line. They had a centralised refrigerating system that was matched in the holding areas of Tilbury and Sydney. Boxes had to be loaded in lots of, I think, six that were compatible with regard to both carriage temperature and taint. So it was with some concern that we heard that two boxes of chilled apples had somehow been loaded into the deep freeze cells amongst the meat. The ship was already on passage, so there was nothing to be done except hold them on arrival at Tilbury until proper disposal could be arranged.

In Tilbury, Murphy's first law came into play: they slipped the net. One, I learned, had been delivered to a consignee in Faversham, Kent, while the other was on its way to another consignee. Before any action could be taken I received a phone call from our Insurance Department: there was an irate customer in Spitalfields' fruit market in London. Would I go round there at once.

When I arrived the customer took me grimly into his office and, selecting an apple out of the open crate on his desk, he bounced the rock-hard fruit on the concrete floor! I 'Oohed' and 'Aahed', saying that this was a terrible thing that had happened; an almost impossible thing to happen with the close control we had on all our containers; the sort of thing that could only happen once in a million years – at which point the lorry driver, who had been standing in the background, said: 'No, Guy. I took an identical box of frozen apples down to Faversham yesterday!'

John Agnew 1994

Containerisation and its consequences

Containerisation meant that a world standard 'box' had to be agreed. New ships had to be built, new ports, with new kinds of crane. Lorry trailers had to be built to take the containers, and railway trucks. A complex worldwide system of tracking containers had to be installed, so that a port might not get overloaded with empty boxes, another short. The container brought a complete change of view.

Today, people may move house by stuffing their own container, conveniently left outside. As we have come to accept the skip, so too the container. People have used them to live in; they have been mobile workshops and laboratories, emergency shelters and animal pens. They have become the world's first fully integrated transport system. And they killed off the handling of cargo, except in remote Third World ports.

The container ships, as they developed, were larger than before, and they could handle far more cargo, far more quickly. They could be loaded round the clock. It has been estimated that, with their faster port turn-round, larger size, and greater voyage speeds, each ocean-going container ship replaced up to twelve breakbulk general cargo vessels.

The British shipping industry pioneered large purpose-built container ships, not least because they offered a way out of the old-style docks and their endless problems of demarcation – and pilfering. But the cost of changing meant that it was not only shipping practices which came under scrutiny. From the 1970s on, shipping companies were more and more aggressively looking at ways of cutting fixed costs. With fuel prices rising, with port handling charges still tied to investments and with freight rates pledged only slowly to rise, it was crew costs which could be tackled most readily.

Tim Madge

Long Voyage Home (1993)

Amongst my souvenirs

I shuddered. Cold, raw fish. I turned to the window and gazed sadly at the meeting of the waters, the Skagerrak and the heaving Kattegat. How, to the northernmost point of Jutland, had I come to talk of containers, and to face,

unexpectedly, this dubious offering of Scandinavian hospitality? The beach was too distant for me to lob the grey, still quivering mass back to its watery home. No alternative. Eyes closed, another aquavit and here goes.

Why Jutland? We were then at the birth of containerisation. Brought up in my early forwarding days on a diet of BD and BK, rail containers both, largely used for furniture and household effects, I had taken a major step along the super-highway of transportation progress by accepting an undefined appointment as 'Container Manager.' Exciting times. The company that I had joined was in a consortium arrangement with some Scandinavian agents of a major UK equipment lessor, operating two tiny vessels to move containers between Felixstowe and the ports of Copenhagen, Malmo and Helsinki.

Tiny vessels indeed by today's standards. One could carry 36 containers, the other up to 60. But what a mixture of equipment. In these early days, patterns of trade had not emerged and commodities and quantities varied enormously, both import and export. So many types of unit, 20 foot, 30 foot, curtain-sided, gondolas, flats, flats with stanchions, flats without stanchions – all needed to service the incipient containerised trade of four countries. It was a wonder we managed to get even 20 or 30 units unloaded, reloaded and fed back to Felixstowe for the Friday sailing. Hence, the Jutland junket.

This was Europe in 1967, pioneering days indeed. In 1966, the UK's National Economic Development Office published a report on exports entitled 'Through Transport to Europe.' It stated, inter alia, the lengths in the ISO standard are 10 foot, 20 foot, 30 foot and 40 foot. The British standard omits the 40-foot length from its recommendations.' As far as the Ministry of Transport was aware, it continued, '40-foot containers are not in widespread use on the Continent, and it is not yet clear whether it is an economic unit of operation here.'

At that time, Sea-Land was using 35-foot containers. Also at that period UK regulations did not allow a 40-foot container to be carried by road vehicle except with a measure of overhang: 'this is not illegal but may overload the rear axle.' Some vehicle operators in those days thought that a container was stable on the back of a flat truck; some even went to the expense of securing them with ropes and chains.

Late in 1967 the British Railways Board launched its container service across the North Sea, based on Parkeston Quay, Harwich. This cellular service was probably the first of its kind operating this side of the Atlantic.
Those active in forwarding in the late 1960s will remember the strenuous and successful efforts of British Railways, particularly those of Jan Posner, to encourage forwarders to own or lease containers and flats. The European Container Group was formed, based on the concept of a discount reflecting collective throughput. UK forwarders responded well; their European counterparts were less enthusiastic.

At that time, the General Steam Navigation Company (great memories of riverside wharves, graceful dipping cranes and busy little steamers plying to France and the Netherlands) owned some 200 containers, 10 per cent of which were insulated. Not everything went smoothly. One company, a freight forwarder, having invested heavily in 20-foot containers, devised a marvellously planned and profitable operation. Car parts from the British Midlands went to Turin. Then, the containers were immediately reloaded with car shells for Ireland. From Dublin, washing machines were shipped back to the East Midlands.

The system worked well until those busy containers, marked with two large red Xs, were no longer seen moving on the Irish Sea. More and more of them arriving from Italy were being stock-piled in Dublin as the trade in washing machines flowed no more. This precursor of modern logistics flickered and died, and one learned that remobilising stuck containers can cost a lot of money.

Another example, again somewhat sad, involved the movement of the first two groupage containers by rail from London to Basle. They travelled together on a single wagon. Press, ponderous pundits and flugelhorns awaited their arrival in Switzerland. But the euphoria was short-lived. Someone had not realised that those containers had only one set of doors apiece and they had been loaded with the doors turned inwards. Impossible to open, no cranes available, embarrassment all round. Why not, it was asked, revert to the horse and cart?

Ou sont les neiges d'antan? Maybe the snows of old are still shrouding those first two intrepid containers to Basle.

Brian Kelleher 1995

Low density cargo

A leading New Zealand shipowner decided to containerise his South Pacific Islands' service in the early 1970s. Part of the process was to persuade shippers and cargo owners of the benefits of such a new system. Prior to this, the service had provided for a number of small volume shippers and was very much a 'grocery' trade. For each sailing, hundreds of bills of lading were issued. The goods commonly carried were foodstuffs (processed and frozen) and building materials.

The shipping company's marketing manager persuaded a large importer of refrigerated foodstuffs in one of the Islands to make the switch to containerisation. When the first consignment was ready, the containers were railed from the load port in New Zealand to the shipper's factory. They reappeared a few days later, were loaded on board and connected up for refrigeration.

During the voyage the container refrigeration machinery was monitored and the carriage temperatures maintained. Things seemed to be working out well. At destination the event was seen as a great attraction to the local islanders. The shipping company sent their local marketing manager to the receiver's premises, and in the presence of other interested dignitaries the first of the containers was opened.

To the consternation of the assembled throng, and also the shipping company, the unit was found to contain nothing but well-chilled air. The other two containers were exactly the same, impressively cold but entirely empty!

Subsequent investigation revealed that when the containers were originally railed out to the shipper's premises in New Zealand, some bright spark had spotted them resting in a rail siding at a marshalling yard nearby. Assuming (wrongly) that they had already been to the shipper's factory, and had thus returned to the rail yard in a loaded and chilled condition, he had promptly railed them back to the port from whence they came.

Neil Wheeler 1994

Containers in military logistics

In recent years the container has been fostered and developed largely by civilian companies anxious to reap an economic benefit, but its first introduction in significant numbers was the product of a military decision. Many commercial advances are off-shoots of military ideas and concepts (ie the logistics or PD concepts). Practically every schoolboy is aware of the elephants of Hannibal and the stomachs made famous by Napoleon.

Often those who were among the initial proponents of an idea are unable to realize its full potential until forced by others (who later adopted the same idea) to take action to achieve this potential. Such was the case with containers.

Although it has been chronicled previously that containerisation made its appearance throughout the 19th century, the first major effort to apply containerisation on a large scale was when the U.S Army first introduced the 'Conex' container.

The Conex, a metal, reusable shipping box 75 inches wide, 102 inches long and 82.5 inches high (roughly 6ft x 8ft x 7ft), with a gross weight of 10,500 pounds (4.6 tonnes), was the product of a post-World War II logistics study conducted by military logisticians. As a result of this study, the Army in 1947 purchased 23 experimental containers to test the feasibility of enclosed, unitised shipments. The result of this test prompted the purchase of 12,498 containers for use in support of the United Nations forces in Korea. Eventually, over 200,000 Conex containers were purchased by the US Army and Air Force throughout the world.

During the early 1960s, when the container development in civilian shipping was still in its infancy (though advancing rapidly), the military continued to rely upon the Conex container. This afforded some of the advantages of the modern standard container, but the Conex still had the serious drawback of being transported aboard breakbulk ships, which required lengthy port turnaround times.

During the initial stages of logistical support for the effort in Vietnam, container utilisation was limited to the Conex. To support the build-up, additional Conex containers were procured for use as in-transit storage facilities while military units were being deployed. Once in-country, these containers were used by the units as bunkers, storage facilities, command posts and in a multitude of other roles.

During the initial build-up period, up to 1968, over 15,000 Conex containers were shipped to Vietnam, transporting over 930,000 measurement tons of cargo. Nearly all were retained in-country for uses described above, creating a shortage of container units for follow-on support.

To assist in alleviating the shortage, civilian container operators were

contracted to move cargo from US West Coast terminals to Okinawa, and later directly into Vietnamese ports.

Richard E. Olson and Thomas W. Scrogin

Containerisation and Military Logistics (1974). Journal of Maritime Law and Commerce (vol. 6. 1)

Problems for insurers

The main motive behind the use of containers for the carriage of goods is to speed and facilitate the flow of cargo from inland points in one country to inland points in others. It is hoped that their use will lead to a simplification or streamlining of the existing documentary and insurance procedures.

Consideration of the present and future methods of transporting, handling and storing containers and of the construction and development of the various types of containers themselves is outside the scope of this article. However, it is perhaps appropriate to consider the effect that the carriage of goods in containers rather than in conventional packaging is likely to have on the incidence of loss of or damage to the goods. This is, of course, of considerable interest to the underwriters who are asked to insure against loss of, or damage to, shipments of cargo that are carried in containers, and to the owners of the goods who are looking to see whether the premiums charged by these underwriters are lower than those asked for the same goods when carried in conventional packaging.

Hopes have been expressed that the use of containers in which to carry goods from an inland point in one country to an inland point in another will so reduce the incidence of loss of, or damage to, the cargo that cargo underwriters will be able to accept a considerably reduced premium. This hope is based on the reasoning that cargo entirely enclosed in sturdy sealed boxes is less liable than conventionally packaged cargo to be damaged by contamination by seawater, or by other cargo, or by repeated handling of individual packages, and would not be exposed to the pilferage to which general cargo is often exposed during warehousing, loading and unloading in small packages, which stevedores can easily and inconspicuously remove.

As far as pilferage is concerned, this reasoning is sound, but cargo underwriters will have to be satisfied by experience that pilferage will actually be reduced by the fact that the goods are enclosed in a container before they will reduce premiums on this score. They have already taken note of the fact that the initial container shipments have shown that scaled containers can be opened and their contents removed, and it is possible that the professional criminal will continue to be as great a menace as he is today once he has learned to overcome the new defences erected to guard the cargo, by finding ways either to remove the contents of the container or to divert the containers themselves. On the other hand, casual theft by individual stevedores should be virtually eliminated, and this in itself should produce improvements in the insurance claim records of individual ships, sufficient to persuade their cargo underwriters to reduce their premiums.

As far as damage to the goods is concerned, underwriters will again have to be satisfied by experience that claim records can, in fact, be improved by the use of containers before premiums are reduced. At the moment they are aware of the reasons why loss of or damage to the goods should be reduced, but are at the same time waiting to see how quickly and completely the inevitable teething troubles of the new system can be overcome. Although it is true that container services are not new, large-scale operations from inland terminal to inland terminal, with all types of cargo, present problems in respect of which full experience has still to be obtained.

For example, cargo underwriters are aware of the increase in cargo damage claims that stems from the carriage of cargo in badly maintained ships, and they have in mind that a container, however robust when first put into service, will soon afford far less protection for the cargo inside it if constantly used and yet not subjected to a strict maintenance programme. Concern on this score is increased by the fact that in many of the new ships that are being or are going to be built, some of the containers will be carried on deck, so that their walls constitute the only defence between the cargo and the sea, which will quickly discover any defect such as a slightly ill-fitting door.

It should, however, be possible to ensure the proper maintenance of the containers by the introduction of the regular programme of inspection by Lloyd's surveyors on the lines of the seaworthiness inspections that Lloyd's and other similar classification societies provide for ships. This would also reduce, at least in part, concern about the difficulties that have been foreseen in the proper care of the more sophisticated types of container by the various carriers who will carry them: for example, the difficulty facing the shipowner in checking, and if necessary repairing, the self-refrigerating mechanism of a container overstowed with other containers in the hold, or

on the deck of a ship at sea.

Moreover, problems of maintenance will be reduced by the extensive research and development programmes into the construction of sound and reliable containers for general and special purposes that are at present under way and which will, of course, also overcome the difficulties of, for example, affording proper ventilation for cargoes that need it. Research, development and experience in container, crane and ship design will also overcome concern felt by cargo underwriters, especially during the early stages of the new container services, about the damage that may be inflicted on goods while heavy, and perhaps unbalanced, containers are being loaded by new cranes and other handling machines and secured in novel ways on board new or converted ships.

Cargo underwriters have drawn attention also to the problems of appropriate packaging of the goods and of the stowing of these packaged goods inside the containers. They have pointed out that, however carefully the shipowner or charterer secures the container on, or in, the ship, the goods will become damaged if they work loose inside the container or are unable to bear the weight of other cargo stowed on top of them inside the container, or, if they are too lightly packaged, to avoid contamination.

One particular difficulty arrives when goods to be sent independently to final destinations after the container has been unpacked at an inland terminal may have to be protected by much more rugged packaging than goods that will be collected at the terminal (and which can therefore, be packed merely to withstand the stresses that will be experienced inside the container). It has already been discovered that wooden cases around such goods for onward transmission are a danger to the more lightly packaged goods in the same container.

Here again, however, care and experience should quickly find solutions to the problems, and the operators of container services will no doubt make sure that competent cargo superintendents are present at the inland loading terminal to arrange for or to inspect the packaging of the goods that are presented for carriage, and to ensure that the various packets are correctly stowed inside the containers.

It is quite reasonable for cargo underwriters to point out the potential pitfalls of the new systems and to express reluctance to reduce cargo insurance premiums until this is justified by clear improvement in claim records, but it seems plain that before long, such premium reductions will be justified.

TG Coghlin

International Carriage by Container (1967) Journal of World Trade Law (Vol. 1.4)

Crewing difficulties with fast turn around

Ironically, crews of containerships are now complaining that because of the fast turnaround of container vessels, they no longer have sufficient shore leave to visit with wives and families. The possibility of lifting two containers off a ship in one lift – now possible with the most recently introduced double spreader device – and cutting turnaround by half as much again, is causing some anxiety among the containership operators. One can envisage there being two crews to each containership, similar to the way nuclear submarines are manned at present.

Containerisation International 1968

A Container conference is born...

Atlantic containership operators will no doubt welcome the recent news that the world's first container conference is to be formed by eight major Atlantic lines.

Initial members are American Export, Isbrandtsen Lines, Atlantic Container Line, Dart Container Line, Moore-McCormack Lines Inc, Nordeutscher Lloyd, Sea-Land, and United States Lines, all of whom trade between Europe and the east coast of the United States, although there is no reason to think that if successful the conference will not ultimately expand and set the pattern for operators on a world-wide basis.

Inevitably the plan still requires the approval of the US Federal Maritime Commission before it can be put into effect, but the prospective members are optimistic that the FMC will give them a green light – possibly before the end of the year.

From the shipowners' point of view the advent of the conference has come none to soon. Senior executives of the major container lines on the Atlantic have long been predicting heavy over-tonnaging and crippling rates unless some single and effective controlling voice could be introduced.

So far as rates are concerned, the conference will be empowered to settle their own figures. And the fact that most of the major Atlantic operators are involved should at least bring some stability to the very delicate issue of rate adjustments.

To safeguard the shipper the conference rules will incorporate clauses enabling any complaints by shippers to be dealt with by the conference as a whole, which latter will also be able to make disciplinary rulings if necessary. How the shipper will react in reality to the formation of a new group remains to be seen since they have been the chief benefactors [sic] of the price cutting battles that the shipowners are now so anxious to avoid.

With container capacity expected to increase by 40 per cent during the current year alone, the Atlantic conference, if successful, may well set the pattern for future developments on other major routes.

It seems, therefore, that the decision taken by the FMC during the next few weeks will be a vital one for the whole future of ocean container transport.

Containerisation International 1969





BOXES

Container control system

A giant magnetic wall chart is helping Europe's largest container operator keep track of the daily movements of its 10,500 containers and rolling stock.

The 65ft long, 5ft high stove-enamelled chart is one of the biggest ever made by Wondersigns Ltd of Enfield. It circles an entire room at Atlantic Container Line Services Ltd in Southampton.

'The Wondersigns chart has vastly improved the control of our container business', said Mr J Grob, Equipment Control Manager. 'It is used basically for tracking and controlling containers and rolling stock going to and from our European ports of call to North America.'

'Now anyone can see at a glance where any unit is – whether it is in Gothenberg, under repair, or on the high seas. Four people are kept busy updating the picture, and preparing statistics, as the information is received in this office.'

'The chart is used in conjunction with a multi million dollar computer in the United States. Sometimes we can produce information quicker than the computer', said Mr Grob. 'For instance, we have just received a telex message asking for a container to ship a load of fresh mushrooms to America. Within seconds by looking at the chart, I can say that a refrigerated unit is free in Le Havre.' The Wondersigns chart, which recently plotted the largest-ever shipment of Dutch Christmas flowering hyacinth bulbs to America, is made up of four different sized boards, stove enamelled grey, with ports of call highlighted in white. Coloured magnetic strips are marked with each container's number; and different colours represent the various sized units: white for 20ft containers, sage-green and yellow 40ft units, brown indicates 40ft open top containers, light green shows refrigerated units, whisky tanks are red, and insulated containers blue.

ICHCA Library 1969

How full is 'full'?

A UK National Ports Council report on unit loads seems to indicate that rated container loading has very little to do with how much cargo is actually stuffed into the container. Most of them are loaded well below their tonnage, the NPC claims.

The average cargo carried in 30ft containers totals only 14 tons, 56 per cent of the rated maximum gross load and 63 per cent of the net load (excluding the container); The 20ft container did even worse: an average of 10.3 tons of cargo totalling only 52 per cent of the rated gross load maximum and 58 per cent of the net load. 40ft containers were not included in the survey.

The non-standard sizes – 29ft and 35ft units – cargo loads averaged only 14 and 16 tons respectively, according to the NPC.

But if these figures are surprising, one should consider that the average load figures tend to brighten the picture a bit since they do not take into account the very wide deviations from these averages to individual containers.

A report on these deviations was made from a sample of over 500 containers at an unnamed British port which handles a large volume and variety of specialised container traffic. This report indicates that almost a fifth of the 20ft containers there carried less than four tons of cargo; and 28 per cent of the 20ft units carried less than six tons of goods. In the 30ft size, about 13 per cent carried less than six tons, and 23 per cent carried less than eight tons of cargo.

The sizes of containers also held some surprise for the researchers. They found that 21 different sizes and 14 different lengths were recorded by port authorities on the UK north-west coast. The standard ISO sizes of 10, 20 and 40ft accounted for just under 40 per cent of all containers in that sample and for just under 90 per cent of the containers used for short and deepsea trades. On the Irish Sea routes, non-standard sizes were mainly used, and 19ft, 8ft and 7ft lengths were popular.

Containerisation International 1969

Continental container threatens total concept

The whole concept of containerisation in Europe is about to be shaken to its roots. The one crucial ISO dimension – width – can no longer be regarded as constant following orders placed by Deutsche Bundesbahn for 300 'Continental' containers, which measure 6cm more than ISO standard. Informed speculation in Germany suggests that further orders for these oversize units will be placed shortly, and that ultimately a fleet of between 8,000 and 10,000 will be needed by the German railways.

The new size is designed to fit in with existing road regulations in Germany, which permit a width of 2.50m, and the DB decision can only be seen as a sop to entrenched trucking and forwarding interests, who want to operate ISO containers exactly as they do trucks.

The seriousness of the situation became plain at the Hanover Fair, an international showcase for Europe's major companies. IWT, at present the largest container manufacturer in Germany, was displaying a 40ft, 8ft 6in high 'Continental' container, despite a stated reluctance to become involved in non-ISO dimensions. Joseph Graaff, which is building a number of 'Continental' units for DB, revealed it has received an order for 1,200 similar units from another organisation. And MAFI, who of course manufacture a wide range of handling devices in addition to containers, were exhibiting a 7m 'Continental' container with 20ft ISO corner casting positions; this unit could only be lifted from the bottom with slings.

The extra width in containers seen at the fair was gained by elongating the corner castings, so that standard 8ft ISO equipment could be used to handle the units (except the 7m). Thus the new size poses 'no problem' for those engaged in rail/road traffic. These interests are apparently totally ignoring the possibility that the new units may be needed for export shipments in cellular ships, which of course could not accept them.

While it is true that DB containers may in fact never be used for exports (Freightliner, for example, have a 'no exports' policy for their units) it is difficult to believe that the new size will be restricted to Germany. The 2.50m regulation is general almost throughout Europe, and Germany is the Continent's most powerful trading nation. Inevitably, interests throughout Europe will wish to adopt the size to remain 'competitive' (even though extra height would add more cube more easily), and the whole Intercontainer network is obviously particularly vulnerable.

The main reason for the new size is to accommodate the 80cm by 120cm pallet (which fits so exactly that it must be packed with perfect accuracy). Yet the life of a pallet is a fifth of a container, and the investment involved incomparably less. Plainly the pallet size, not the container, should be changed.

Containerisation International urges all those who are considering the new size to remember that its adoption will lead, eventually, to fewer savings for all.

Containerisation International 1969

New ISO breaches threatened in US

In May, Containerisation International warned that Deutsche Bundesbahn, in departing from the International Standards Organisation's 8ft width regulation by 6cm, could be sounding the death knell for a truly international, intermodal transport system. Now, in the United States, a far more serious threat may be developing for Atlantic containership owners.

The House of Representatives Subcommittee on Roads and Transportation is presently conducting hearings to determine whether existing construction and use regulations for trucks and buses should be amended to allow a width of 102in (8ft 6in) instead of the present 96in (8ft). Disregarding container users, arguments for the new measure are strong. For example, the subcommittee has been told that the measure would save \$500 million in the food industry alone, simply because two 48in wide pallets could be placed side by side in a 102in trailer, and that the overall saving could amount to \$50 for every family in the USA.

Such savings are plainly strong incentives, but even if the measure is not finally passed, it is symptomatic of a trend towards maximising payload, regardless of international agreements.

It is now history that the intermodal container came to Europe via the North Atlantic, and that a tremendous investment in ships and containers has been made by operators serving that trade. So much so, indeed, that many commentators are predicting an over-tonnage of containerships, with the almost inevitable rate war. And it seems more than probable that the new truck size would be almost commonplace by the time that this competition has reached its peak. While the North Atlantic trade is of great importance to European countries, the converse does not hold true. Exports account for only four per cent of the USA's gross national product. Thus, exporting has little influence in America, and many businessmen are orientated entirely to the home market.

Therefore, if the 102in width becomes 'normal', ISO size containers will be 'oddballs,' just another obstacle between the exporter and the customer. American package sizes will be geared to the 102in width, and therefore, will be uneconomic to stow into an 8ft width. Thus, return loads for ISO containers will be increasingly hard to find once the container has moved inland, and the operator will be faced with a dead-heading charge. So the pressure will be on to produce an 8ft 6in wide container.

If this happens, ISO container size standards will become an anachronism, and the concept of a truly international, intermodal container, with its promise of savings for all, will be relegated to the world of pipe dreams.

Containerisation International 1969

A moving story...

The day may come when your neighbours could be described as a 'threecontainer family' instead of a three-car family.

That's how many containers it took to move F Wise, an English company director, to Australia. He has moved 15 times before to spots all over the globe, but found this move the easiest of all. Is removal work a growing market for containerisation?

Containerisation International 1969

All-steel container

An all-steel, rivet-less container has been developed by the York Trailer Co Ltd, of Corby, England. At a cost of $\pounds 540$ for the 20ft ISO model, the product should be popular among shippers and operators wishing to enter the field of containerisation.

York's 'Envoy' container follows the pattern of their successful TIR

semi-trailer van bodies. Side wall posts and roof bows, for instance, are pressed into panels at 6in (152mm) intervals. Weight is saved by the elimination of conventional separate posts, and thus the container provides payloads in line with more costly aluminium containers. There are no rivets at all in the Envoy – an all-welded construction ensures perfect leak-proof seals.

Built to ISO, British Standard and Lloyd's requirements, the containers can be supplied at l0ft, 20ft, 30ft and 40ft lengths. Payloads, respectively, at 19,824lb, 40,544lb, 50,510lb and 60,360lb. Cubic capacity ranges between 530 cu ft to 2,240 cu ft.

An interesting design feature of the York all-steel container is the roofdrainage holes which carry away rain or sea water which has collected in the corrugations. At the recent Ports and Terminals exhibition at Brighton, York caused a stir when they launched their new container into the sea off Brighton pier. It stayed there for a week and was found to be completely leak-proof when it was brought ashore and opened up.

Containerisation International 1967

Compatibility

Compatibility: One of the biggest headaches for container users is the problem of matching dimensions of the container, pallets and packing units. Ideally, a shipper should be able to use a package size, the multiple of which would fit exactly onto a standardised pallet. This pallet could be fitted in multiples into a standardised container. Everyone would use the same dimensions for each unit, no cargo space would be lost and transport and distribution would become more efficient. It would all fit together like a set of building blocks.

This, unfortunately, is not the situation. Although pallets and containers have both been standardised, there is no correlation between the dimensions of the two units. Standards on pallet dimensions were set in the early 1960s and many producers and exporters subsequently began to base their operations on these sizes. Containers were standardised several years later, but without consideration of the existing pallet size. The result is that the most commonly used ISO pallets cannot be efficiently stowed in a standard container.

Some countries have solved the problem of compatibility by switching

to non-standardised pallet sizes, for instance Australia and Japan, which use square pallets that fit container dimensions exactly. But the ISO pallets are so well established in Europe and the United States (mainly 800mm x 1,200mm and 1,000mm x 1,200mm sizes) that it would be almost impossible to change to another size. It would cost a large-scale producer who has automated warehousing a very large sum to convert his internal and external distribution system to new sizes of pallets. Changes would be required in pallet racks, conveyors, elevators and pallet loaders. But because of the problem the mismatched dimensions raise, some countries have investigated the costs of changing over. However the costs have proved too great.

European producers make the best of an unsatisfactory situation by continuing to use their ISO pallets, and when it comes to containerising they either stow the ISO pallet load inside the container and lose payload, or switch to non-standard pallets for containerised loads only, or else use no pallets at all within the containers, depending on which method brings the greatest savings in each case. The railways in the Federal Republic of Germany have tried another alternative – in addition to the ISO-size containers they carry, they have developed a second size adapted to the dimensions of the ISO pallet, which is used mainly for intra-European cargo movements.

Finding a packing module suitable for the standard pallet and container complicates the problem. Many European food and consumer goods industries use a 400mm x 600mm packing module, which fits both ISO pallets. But this module does not fit the non-standardised pallet or the standard container. The ISO has attempted to standardise a packing module that would serve all purposes but agreement has not yet been reached. A proposal was made last year in the relevant ISO committee for a 400mm x 600mm module, but the matter is still pending. Because of the present state of disarray, shippers usually adopt the container size, pallet size and packing module that best suits their particular purpose in relation to their products, the specifications of the buyer, the means of transport, the route and savings in cost.

Conscious of the many difficulties that can arise from incompatible dimensions, the ISO Council recently established a technical division to deal with the 'distribution of goods' – packaging, unit loads, materials handling systems, storage of goods and means of transport. The ISO has also established a study group to evaluate the discrepancies between the dimensions of packages, pallets, containers and other unit loads and to recommend short and long-term solutions.

International Trade Forum 1972

50 per cent of US containers are 35ft!

A survey carried out in the USA by the Truck Trailer Manufacturers Association indicates that its members built 22,192 containers and 11,990 container chassis in 1969. Of these 84.2 per cent were general purpose dry vans; 6.9 per cent were reefers; and 1.5 per cent were insulated containers. The remaining types (given as percentages) were: open tops 2.7; platforms 1.2; open side gondolas 0.7; tanks 0.6; car haul 0.2; and other 2.0. The 35ft unit accounted for 50.9 per cent of reported production, followed by 40ft containers with 26.4 per cent. Remaining percentages were 20ft 9.5; 27ft 6.8; 24ft 3.5; and 10ft 0.5. Unique, special purpose containers having unusual lengths accounted for the remaining 2.7 per cent.

Containerisation International 1970

Townships by containership

A new $\pounds 150,000$ idea for container housing.

A new extension of the ISO container principle has made possible the transport of complete hotels, buildings and even townships for quick erection in almost any part of the world. Called the Borys system, the concept is an advance on similar earlier ideas in that each container opens out on site into a fully furnished and equipped room unit of a much greater size than ISO dimensions. These room units, plus various service modules, can then be assembled into complete buildings.

The designers, Nickson and Borys and Partners, a large and well established design and construction company which has been engaged in building projects from Sierra Leone to the Arctic, claims to have spent $\pounds 150,000$ in developing the idea. It believes that the system could provide cheap housing quickly and at low cost, or provide modern hotel accommodation that could be moved from one area to another in response

to seasonal requirements, for example from the south of France to an Alpine ski resort.

As units can be supplied in a completely self-contained form – equipped down to bed linen, if necessary – the need for skilled labour is reduced. A 250-room structure, says the company, could be constructed after site work is completed by 24 men in three months, operating under 'any weather conditions.' Foundations with services, staircases, lifts and plant rooms are all containerised as well. The units clip together using a special locking system and can be built to eight storeys high without the need for extra framework. Using a reinforced concrete core, 32 storeys can be achieved. The modules are constructed from grp/plastic foam sandwich, similar to ISO insulated units. A 40ft unit opens up into an area 40ft by 40ft.

Estimated cost of a 21-bedroom motel, including site works, construction costs, labour, landscaping and contingencies is said to be about $\pounds 70,000$ – roughly compatible with traditional building methods in Britain.

Containerisation International 1971

Reducing maintenance costs

Based on seven years of experience with both plywood and aluminium containers, American President Lines – which operates a trans-Pacific shipping service from San Francisco to, amongst other places, Japan – has determined that plywood containers require less maintenance and repair, are less susceptible to puncture, and are not subject to electrolysis. By using such containers, a 50 per cent reduction is claimed by APL in its cargo container maintenance costs per annum.

According to the company, repairs to aluminium containers are more frequent, more costly, and, in foreign ports, almost impossible. Based on this knowledge, APL is currently phasing out all aluminium containers and purchasing new glassfibre-coated plywood containers. The reasoning behind this decision is that APL will be able to reduce even further the annual maintenance costs, because it will be able to make the repairs that were formerly carried out by container manufacturers.

In the past APL has used plywood containers ranging in size from 4ft x 6ft x 6ft, to 8ft x 8ft x 8ft. All new container orders, however, will meet the

cargo container standards recently proposed by the International Organisation for Standardisation (ISO) and American Standards Association (ASA).

APL has ordered 1,000 new plywood/glass fibre containers of the 8ft x 8ft x 20ft module, each equipped to meet the ISO standards for international transportation by ship, rail or truck. Over 100 of the new containers have been delivered and have been found to be more than satisfactory in every way. 'The design of the new units gives us much more versatility in movement', explains a spokesman. 'Now, fork-lift trucks can be used where before we had to rely on large overhead cranes.'

This same design also makes more efficient use of available space at dockside. APL can now store 300 20ft plywood containers in the same space where only 170 aluminium containers of the same size could be stored before.

The time required to phase out all aluminium containers will be approximately two years, and APL has experimented with different methods to cut aluminium maintenance costs during this period of time. Knowing that one-third of all repair costs is for roof damage, APL looked for ways to solve this problem. 'We experimented for two years with a variety of products and a number of other possibilities before deciding that plywood was our best answer.'

The technique used by APL is simple enough. They apply ¼ in exteriortype A-C grade plywood, finished with two coats of shipcoat deck oil, over the aluminium roofs. 'We are very satisfied with the way plywood has done the job, and the cost has been less than the average yearly maintenance costs. To my knowledge we haven't had to repair a single over roofed plywood surface, except where a boom has been dropped which would carry everything away, regardless of roof construction. Containerisation has brought a considerable saving in time and labour costs in APL's operation as compared with conventional shipping. 'In a break-bulk hatch on the West Coast we have a 16-man gang, while only five men are required for the container hatch. Now, the container hatch is the short hatch; but when we go to full containerised ships we will realise the full profit potential of this system.'

At the present time APL has two semi-containerised vessels in operation – the *President Lincoln* and the *President Garfield*. Each has one container hatch which accommodates 126 8ft – 20ft containers. American President plans to convert four of its vessels to full containerships, and when this has

taken place each will be able to carry more than 400 of the new 20ft plywood/glass fibre units.

Containerisation International 1967

Concern over cost of repairs

The increase in the use of containers has naturally resulted in a corresponding increase in container damage. The high cost of container repairs has become a matter of concern to all operators, especially lessees. The specialist insurance companies have also become involved.

The Through Transport Mutual Insurance Association, for instance, has been closely involved with the cost of container repairs and states in its recently published annual report: 'Amendments to container repairs should show a substantial reduction of expenditure by the container industry in this field.'

However, the high repair costs at a time of poor market conditions for the container industry throughout the world has forced a drastic rethink on repair and inspection standards. It could be argued, however, that it is not really a change in standards, more a change in the level to which a box is repaired or inspected. The standard remains constant but the amount of repair work has been significantly reduced. With the advent of IICI3 the average box repair time has declined.

Leasing companies in particular, which have been striving to achieve a sensible return for investors, are increasingly deciding that they cannot afford to totally refurbish the majority of their equipment. Instead they are taking the view that preventative maintenance work will be sufficient to keep their fleet serviceable and in reasonable order. This change in attitude to container repair has unfortunately had a direct impact on container repair companies, which over the years have made significant investments in sophisticated equipment. Often such investment has been prompted or requested by the shipping or leasing companies. Such investment can no longer be justified or supported by the reduced repair standards.

So what does this mean in terms of future development of the container repair industry? For a start there will have to be a complete rethink on rate structures. It is no longer viable for a repair company to offer free storage and provide lifts for inspection on equipment without making a charge. The smaller companies will find it increasingly difficult to invest adequately in the more expensive sophisticated equipment because they will not be able to see the return. Indeed, even the larger companies will control their expenditure on equipment to a more realistic scale.

The more enterprising repair companies must diversify their operations and look to new, but in some cases related, sources of revenue. For example, several companies are now selling obsolete equipment. Such equipment can be re-used, either converted for non-container use or adapted so it is in a wind and watertight condition and used as a one-way packing case.

Indeed, the conversion of containers for alternative uses is starting to become one of the major sources of revenue. Special container repair units have been formed to convert containers for use as offices, site security, generator houses and so on.

Again, another logical development for some companies is to move into transport and to act as clearing houses for owner-drivers. Most repair depots are either dealing with or are part of a large shipping company and therefore have the opportunity of giving business to the owner-drivers who themselves could not approach the larger companies.

Tom Clark Lloyds List (1984)

Big UK switch to GRP

Two factors dominate the UK container manufacturing business at present – a growing interest on the part of many companies in building GRP/plywood containers and a continuing drop in total production. The trend towards GRP is illustrated by the fact that York Trailer Co, which is well known for its steel containers, has added GRP/plywood boxes to its product range, and Cravens Homalloy, long known for its expertise in both aluminium and steel containers, is now building GRP boxes. Well known names in the GRP sector, such as ConCargo and Duramin Engineering, expect to be working to maximum capacity this year.

Although its total production continues to fall, the UK manufacturing industry is still one of the most important suppliers of containers in the world. Thus, although 1974's output will probably only have been about 75 per cent of 1973's, UK manufacturers can take some consolation from their

export performance in the first six months of 1974, which, if it is maintained throughout the rest of the year, will mean overseas sales in 1974 being up on those in 1973. Export business is largely sustained by sales of dry freight boxes, of which steel units constitute the largest share, a situation which reflects the purchasing muscle of the major US leasing companies. Meanwhile, the aluminium sector of the market continued to show the biggest drop, with only two dry freight aluminium containers being built during the first half of 1974.

Many UK manufacturers wonder how long this relatively healthy export situation will continue. UK boxes now cost at least as much as those constructed in the rest of Europe. Escalating expenditures on raw materials, notably steel, have played a large part in these price increases, but the general rate of inflation running in the British economy as a whole has not helped, having only been partly offset by the falling value of sterling in foreign exchange markets. However, the UK industry has been through lean times before and most of those companies that are now in the market have trimmed down their productive capacity so that they should be able to live through what promises to be, in the words of one manufacturer, 'a soft market in early 1975.'

However, all is not gloom on the container scene. Most manufacturers look forward to an upsurge in orders in the latter part of this year. The containerisation of the Caribbean, South African and New Zealand trades are seen as providing the main impetus for this growth, and with British and European involvement being large in all these new operations UK manufacturers are out to get their share of this business. It is anticipated that all sectors of the industry will benefit, with refrigerated and insulated manufacturers gaining as much as anybody – about 100,000 fully refrigerated containers will be needed to cater for the South African and New Zealand trades.

It is expected that a large number of orders for containers for these routes will be for GRP/plywood containers, a development that in part explains the move towards GRP that is currently taking place in the UK. Other reasons are generally agreed to be the realisation on the part of more operators of the advantages which are often attributed to GRP units. These are said to include: high payload, low maintenance costs and a long life cycle. The prospect of more stable prices for GRP/plywood than for steel containers may also prove to be an additional attraction, although at \pounds 1,350/1,400, the minimum cost for a GRP/plywood 20ft dry freight

container is about on a par with that for a similar aluminium box, but above the $\pounds 950/1,000$ minimum for a 20ft dry freight steel container.

Jane Boyes

Containerisation International (1975)

Ten years on

An Assessment of Containerisation past, present and future.

...The world container fleet itself is now also fraught with inconsistency. In 1966 Sea-Land and Matson had already established their systems on 35ft and 24ft long modules respectively. After much haggling the International Standards Organisation decreed in favour of 20, 30 and 40ft long containers. A subsequent trend to 'high-cube' boxes means that today containers anywhere from 8ft to 40ft long and between 4ft and 9ft 6in. high are in service.

Any futuristic hopes of a world container pool, arguably in the best interests of operators and shippers alike, are at present null and void. To this day operators debate the relative merits of ISO-approved 20 and 40ft boxes. The operator dreams of a world comprised of FCL, 40-footers. The latter would keep ship/shore handling and vessel port time to the minimum. The former would reduce the time, trouble and expense associated with the small freight consignments. As container operators very well know, many shippers' cargoes are neither suited to 40ft boxes nor available in cubic volumes convenient to the operators' overt preference for FCL traffic.

R E Gurney

Containerisation International (1976)

Saudis edge closer to multi-door box

Saudi Arabia now appears to be moving irrevocably towards adopting a policy of 'encouraging' the introduction of the four-door container for all containerised traffic moving through the kingdom's ports, despite mounting opposition from the shipping lines and considerable opposition to the move from within Saudi itself.

The debate over whether shipping lines should be made to use a four-

door or multi-door container on services to Jeddah and Dammam is an issue which has been raised several times over the last two or three years in Saudi Arabia. Although the Saudi Ports Authority appears to be fully attuned to the concept of containerisation and has encouraged its use to the full to speed goods through Saudi ports, the use of containers as a method of smuggling arms and alcohol into the kingdom, virtually unchecked, has raised considerable alarm at higher government level.

The insistence that all containers moving into Saudi should have four doors – one on each side of the container – thus making customs inspections easier, seemed the best solution to the problem, even though such a container does not exist in the deepsea trades. Until recently, moves towards having such a 'Saudibox' designed and introduced have successfully been resisted at local level in Saudi, mainly by those involved in day-to-day contact with container handling at the ports.

But with the introduction earlier this year of a 100 per cent customs inspection of all containers moving through Saudi ports, related it is thought to the events of Iran and the Yemen, the whole issue of introducing multidoor containers has been raised again, and this time it seems certain that the Government is determined to have its way and force the introduction of the multi-door container onto the lines serving Saudi ports.

The immediate problem that arises from such a proposal is the fact that there is as yet no such container as the multi-door 'Saudibox' and the authorities in Saudi have therefore now got to decide exactly what will be the specifications of what will be virtually a new box design.

To help in the discussions, one or two of the major container leasing companies have put forward suggestions as to how the design problem might be solved. Already under scrutiny in Saudi is a 20ft four-door container which is currently used by French railways on a purely domestic basis. The container meets all the initial specifications the Saudis are looking for, except that it is massively heavy with a tare weight 50 per cent greater than a normal 20ft box.

Apart from the added expense of leasing such containers there are operational problems which possibly the Saudis have not considered.

A multi-door box, for instance, would not be stowed on the open deck of most container vessels. Standard containers are normally stacked on deck facing aft to avoid damage from sea water. This would not be possible with a multi-door box. Insurance for such boxes will be very high because of the poor security aspect of having four doors. But all these are minor problems compared to the fundamental problem that a Saudibox would only be of use in the Saudi trade.

Middle East Transport 1979

Prices steady for typical units

Orders pick up as the major leasing companies expand their fleets... Depending on the country of manufacture the prices of a 20ft dry container can range from just under $\pounds 2,000$ to slightly over $\pounds 3,000$, the units being designed and built to meet the rules of the classification societies and the International Organisation for Standardisation. In order to obtain a realistic average price it has been necessary to base the figure on a fairly comprehensive specification. It should be remembered that certain container-owning companies have additional requirements in terms of material, scantlings and general finish. The following brief specification for dry 20ft cargo is based on the requirements of an owner operating very good quality units:

Internal dimensions to include a length of 5,990mm, a width of 2,330mm and a door height of 2,270mm. Design and manufacture to comply with the requirements of the classification societies. Construction and materials to withstand operating temperatures from -40° C to $+66^{\circ}$ C. End frames to be of steel with aluminium alloy or GRP cladding with rolled steel or aluminium alloy rails within the container. All container sides to be fully-lined. All sides, end roof and end panels to be lined against ingress of moisture. Doors of steel or plymetal. Container shot-blasted to SA 2 1/2 and coated with zinc epoxy resin system to a specified thickness. Lashing facilities to be provided. Roof of container to be designed to resist the effect of damage caused by spreader. It is estimated that the price of such a 20ft is $\pounds 2,600$. It is appreciated that a cheaper unit can be obtained in China or Yugoslavia.

Compared with the number of dry containers in the world the figure for reefer units is very low, the respective figures being two million and 60,000 but this state of affairs is now changing rapidly as shippers see the advantages offered by the reefer container and as the operators develop new methods of handling cargoes. A typical specification for a reefer container is as follows:

Internal dimensions of length 5,650mm, width 2,220mm, height 2,075mm and door width 1,940mm. The classification societies requirements to be met. To withstand temperatures between 40°C to +66°C. Steel end-frames, aluminium alloy or rolled steel rails. Facilities for air flow along the floor. GRP with reinforced battens for internal liners. Doors of steel or plymetal. Shot-blasting and painting as for dry container. Lashing points. Roof as for dry container, to withstand the effect of the spreader. Insulation to give the required maximum level of heat leakage. The amount of insulation required by a customer would in certain cases be linked with the thickness of the insulation in the hold where the reefer container is stored. The estimated price of the 20ft reefer to the above specification is $f_{3,600}$ but it should be pointed out that some operators will pay more than this in order to obtain improved performance. Out of a total of nearly 90 container manufacturers worldwide, only 30 produce insulated containers and only four of these are based in the United Kingdom.

Fairplay 1981

Editor's Note: By the second quarter of 2006 the average price of a 40-foot dry container built in China was US\$ 2,960 while a 20-footer cost around US\$ 1,850. Prices had been higher at the end of 2005, the respective average costs being US\$ 3,200 and 2,000. The increased sophistication of reefers since the original article was published in 1981 is indicated by quarter two 2006 prices of US\$ 14,200 for a 20-foot reefer and 17,400 for a 40-foot (2006).

Santa Fe develops 45ft intermodal container

The Santa Fe Railway has developed a 45-foot intermodal container, designed to handle a wide range of products, from palletised goods to bulk commodities.

Larry Cena, president of Santa Fe, said the company's goal was to develop a versatile container capable of improved equipment utilisation and fuel efficiency. The 45-foot long prototype was fabricated from fibreglass to reduce weight, and has an aerodynamic exterior shaped approximately like a block letter 'A.' The unique container has been designed to be stacked two-high aboard Santa Fe's Fuel Foiler train. The two 'legs' of the container straddle the Fuel Foiler's centre sill and ride just above the rails, thus achieving a low centre of gravity.

Cena said the Fuel Foiler container, as it has been named, can accommodate up to 55 tons of bulk commodities or palletised packaged goods, and could easily be modified to handle liquids. 'We do not expect that the Fuel Foiler will make obsolete standard rectangular containers', he said, 'but it has a good potential for meeting specific needs of certain shippers.' A good example would be shipment of grain or coal to the Orient and manufactured goods on the return, thus achieving excellent utilisation, he stated. The prototype container is fitted with a trough hatch at the top for loading bulk materials, and gates at the bottom of each leg for speedy unloading. A grated deck inside allows bulk materials to flow through easily, and yet provides a level support for package goods. Standard forklift trucks can be driven inside. The unit is 8ft wide, l0ft 3m high, and has a load limit of 109,500lb. 'Development of the Fuel Foiler represents a total systems approach to transportation', Cena noted. 'Our plan was to develop a system to meet needs not being satisfied with conventional equipment.' He noted that Santa Fe has also developed a special chassis to transport the container on rubber tyres.

The new container incorporates excellent aerodynamic characteristics, Cena noted. In addition, when loaded aboard the Fuel Foiler rail cars, there will be a minimum void between containers. This greatly reduces wind drag experienced from the open space between conventional containers, he said.

Fuel Foiler containers can be stacked six-high aboard ship or in staging areas. When in rail service, they would be stacked two high if empty or loaded with light materials, but would not be double-stacked with bulk materials.

Cena indicated Santa Fe will soon have three Fuel Foiler containers built of fibreglass and three of aluminium. The prototype has stood up well in testing, he reported. 'Our plan is to make these six containers available to customers for loading with a variety of products so we can accumulate experience in actual service', he said.

(Note: an object lesson in total non-compatibility – the A frame was never put into service).

Container News 1985

Gone fishing

The cost of a fish dinner in top Japanese restaurants has stimulated the development of live fish transportation on container ships.

One only has to stroll through the Tsukiji wholesale fish market, just a stone's throw from Tokyo's fashionable Ginza, to realise how seriously the Japanese take their fish: New Zealand live snapper – Y3-5000 (US20-32)/kg; Japan Near Sea live snapper – Y8-10,000 (up to US54)/kg; cultivated live snapper – a mere snip at Y2-3000/kg.

As for retail prices in top restaurants, 'they could well be beyond your imagination', remarks Capt S Nitta, manager of the fresh cargo project team in the multimodal transport division of Mitsui OSK Lines (MOL), the carrier which, in conjunction with Japan Aquatec Co Ltd, based in Sasebo (Nagasaki), has pioneered the transportation of containerised live fish from New Zealand to Japan. The price is certainly beyond most people's pocket: multiply the Tsukiji price by three or five, and one gets close to the price in the restaurants with which MOL is dealing.

So far, MOL has commissioned four so-called Fishtec containers. Essentially these are 20ft flatracks with a rigid, all round 8ft 6in frame and incorporating two 6m³ tanks backed by a 'total life support system', comprising a reefer unit with microprocessor controls, a back-up reefer/control system, a water pump and circulator (some fish need to swim constantly 'against the current'), a light source to mimic sunlight, an aeration system to supply fresh oxygen and absorb carbon dioxide, and a filter purification system to remove scales and other detritus and thus prevent growth of bacteria which would absorb oxygen and cause the fish to suffocate and die. (It may also be necessary to starve the fish for two or three days prior to shipment, to reduce their secretions.) A monitor/indicator system is fitted at the 'door end' of the container.

Desired water temperature is of course species-dependent, but in all cases it needs to be cooled to slow down respiration rate ('make them sleepy') and preserve the level of oxygen in the water. The other important point is that as the ships cross latitudes, the ambient temperature of fresh seawater changes, so it needs to be cooled before exchanging water in the fish tanks. On average, says MOL, one hour is required for each degree of 'pull down.'

Obviously, ullage levels must be kept low. The containers have a tare weight of 7.86 tons and an mgw of 20.32 tons. Density (weight) of fish in

the water is only 4-5 per cent. The cost of the containers has not been disclosed, but is rumoured to be in excess of Y10million (US\$65,000) per unit.

MOL/Japan Aquatech's first live test took place last autumn, in a 16-day Sasebo-Kobe-Kaohsiung-Kobe-Sasebo circuit. Subsequently, 360 natural ('wild') red snappers were transported from New Zealand to Japan, an 11day sea voyage which resulted in a 70 per cent outturn. One of the problems turned out to be a relatively high ovulation rate, which had started to choke up the filtration system. The filter/purifier has since been enlarged and the mortality rate on snappers and bream has been reduced. According to Nitta, the mortality rate for farmed snappers, which are more used to an enclosed environment, has been reduced to zero.

MOL is now examining the feasibility of transporting shellfish such as lobster. Intermediate racks and shelters can be inserted in the tanks, but it will be necessary to carry out static trials first to determine optimum temperature, exchange and water flow conditions.

Looking ahead, MOL thinks the service will be confined to Japan coastal and Japan-Asia/Oceania trades even though live storage of up to 28 days may be possible, depending on species. No firm indications of how many Fishtech units it will procure are yet available, although MOL is confident that the system has already proved a viable alternative to air transport, which is of course faster, but even more expensive.

Critics say that Fishtec is 'gimmicky' and that fish outturn has been worse than MOL is willing to admit, but in fact the system has already stimulated competition. On 6th June, Navix Line's *Godwit* landed 570kg of red sea bream (313 fish) from New Zealand at Tokyo's Oh-i container terminal. The special 20ft flattrack, equipped with a water tank, a seawater purifier, a reefer unit and temperature control system, has been built by IHI. Survival rate was claimed to be 84 per cent (264 fish), short of the 95 per cent target but encouraging enough to continue working on the system.

Vincent Champion

Cargo Systems (1992)

Container debate continues

While recently accepting new high cube container specifications at its meeting in Seoul, TC 104 is still assessing the impact of a proposed new

container length of 49ft. Further research will be needed concerning the full impact on end users. Further work will also have to be done concerning the practicalities of introducing a new second generation marine container standard on a worldwide basis, should it ever be formally agreed.

Despite the fiery discourse on the topic of a second generation container standard that has often raged, it should be noted that the original first generation marine container standard has proved one of the most successful ever introduced. The original parameters of ISO Standard 668 have not radically altered since its introduction in 1964 and such stability and uniformity has provided the necessary conditions for the remarkable growth and expansion of containerisation and intermodalism worldwide.

The use of a container standard which allowed only a few accepted variations has enabled the introduction and deployment of costly handling equipment, requiring huge sums of capital investment, in the confidence that such investment need only be assessed in the light of the normally acceptable commercial risks and uncertainties of international trade, and would not be voided or made worthless as a consequence of a proliferation of different container sizes. However, the evolution of shippers' requirements and local changes in restrictive regulations governing vehicle and trailer dimensions has enabled the development and increasing use of marine containers with dimensions greater than those of the usual, well known, and widely recognised, ISO standards.

Non-standard containers have, of course, long existed, but to date have mainly featured in a handful of trades and trading regions. The fear is that oversize containers will eventually spin off into open circulation which, apart from giving rise to practical handling difficulties, will also bring an additional cost burden to ports and service providers as a consequence of having to handle and store a plethora of container sizes.

Apart from the acceptance of high cube boxes, the only other major changes to the original ISO 668 standard have been the introduction of 8ft 6in high containers, and the increase in permitted gross weight, of 20ft containers, to a maximum of 24 tonnes.

Although the above were important modifications to the marine container standard, they did not unduly affect container interchangeability and intermodality.

However, it is argued that the proliferation of a range of new and different container lengths would pose particular problems for transport operators and cargo handlers worldwide, many of whom consider that the development and implementation of full intermodalism would be seriously impaired and placed at risk if a situation of change in the generally accepted size of containers were to continue unchecked.

The difficulty for the ISO, being the recognised standard setting agency, lies in trying to strike a balance on the one hand between the benefit to cargo handling service providers throughout the world of maintaining an existing container standard regime on which much investment has been based and standard operating procedures have been developed, and on the other hand, the need to recognise the emergence of new market forces from cargo service users. This is the complex task facing ISO's TC 104.

Most people are aware of the developments in the USA regarding domestic container sizes, where as well as the standard ISO 20ft and 40ft long containers, boxes of 45ft, 48ft and 53ft in length exist in significant numbers. Because of such developments in the US market, it was formerly observed that the US was the prime mover behind the lobbying for the introduction of a new container standard. While this may have initially been the case, it has lately been noted that the initiative would appear to have been taken over by some European countries and agencies.

In particular, the proposed 49ft specification in the proposed new Series 2 standard has been actively promoted by certain European interests. One of the reasons for this is that swop bodies are an increasingly important loading unit in Europe and a 49ft container standard is compatible with the standard 7.42m swop body specification. Modularity has become an important factor in the oversize container debate and as will be noted, two 7.42m swop bodies would make a combined length of 49ft.

The 15th session of TC 104 in June 1989 heard submissions from India, Kenya and Malaysia that they could not agree to the introduction of a second generation container standard due to their countries' inhibitive infrastructure and the limited possibility for the considerable new investment required in accommodating second generation containers.

Of the ASEAN nations quoted in the report, only Singapore was considered to be equipped to adequately handle 45ft long containers.

Indian Railways has stated that the movement of large size containers is not possible on its network as a result of infrastructure constraints and a lack of adequate rolling stock. In Thailand the movement of 45ft containers has also caused problems as a result of which the movement of oversized containers is not permitted on public highways.

The Indonesians are also very aware of the problems of handling,

stacking and transporting 45ft containers and consequently oversized boxes are not permitted to be unloaded at Indonesian ports.

If the period of relative stability and conformity that has been enjoyed throughout the international cargo handling industry is to continue, then all concerns regarding second generation containers will need to be examined on a worldwide basis and an acceptable compromise found.

ICHCA Cargo Systems 1991





BOX CARRIERS

1995 – A record year (in more ways than one!)

By the end of 1996 there will be over 5,300 containerships afloat – not including those with capacities of less than 100 TEU. The oldest were converted from general cargo ships originally built just after the end of World War II; relatively few containerships have been scrapped. They have been re engined, jumboised and even shortened, like the Sea-Land Atlantic class, but scrapped?

This means that the current fleet represents just about all the containerships ever built and an analysis of the fleet reveals some startling facts. For example, since 1974 the growth in total TEU shipboard capacity has been almost linear, at 11-12 per cent per annum, about twice the growth in world trade over the same period. Whilst this is not strictly a fair comparison – trades have been containerised during the period – these statistics could also imply a lengthening of supply chains, increasing trade in more voluminous goods, increasing transhipment and larger trade imbalances.

The average size of the fleet, taken year on year, was a little erratic until about 1974, when steady growth began and it is now around 750 TEU, compared with 500 TEU a decade earlier. However, this masks a recent dramatic increase in vessels over 4,000 TEU from just 10 in 1990 to a projected 110 by 1996. 1995 will be a record year for the introduction of new capacity. Over 350,000 TEU will be added, compared with the previous best of 233,000 in 1985, and another 250,000 TEU is already booked for delivery in 1996 with more orders possible. Many of the major carriers have vessels on order – Maersk, Evergreen, APL, NOL, Hyundai and Sea-Land, to name just a few.

But when will it end? Can capacity continue to outstrip world trade growth? Will large-scale scrapping ever take place and require replacement tonnage to be ordered? Or perhaps containerisation itself will be replaced by another cargo revolution?

Philip Sutcliffe 1995

Pan-Pacific voyage

On the bridge early this morning. Remains of the storm still blowing, but it moved across us fast, says the captain, and the worst is long gone. Bulky low cloud and drizzle, a sluggish sea and not a strand of sunshine can be seen through the long, wide windows. In short, inauspicious conditions for an auspicious day – the return to the Western Hemisphere, the halfway point of my journey, the crossing of the International Date Line.

Since nature has refused to play up and no international corporation has yet considered the advantages of sponsoring a line of Date Line marker buoys, we are reduced to marking this great occasion by watching the line appear on the satellite navigation screen, which is a bit like seeing the New Year in with Radio 3. There are no trumpets sounding, not even an extra electronic bleep to mark our passage into another hemisphere, just the split second changes of little white numbers. 38.02N is our latitude (about the same as Benidorm or Baltimore), and at 8.20 precisely, longitude 180.00E flashes for a second, then remorselessly moves onto 179.59W...

My fate depends ultimately on one propeller and the ability of the engine to turn it non-stop, 24 hours a day, in all weathers, for at least the next six days. The propeller weighs 35 tons, is cast in bronze and has four blades with a diameter of about 27 feet. The engine room area occupies five floors below decks, and the cylinders are three floors high. If noise were enough to drive the ship along I would have no worries. We are given earprotectors, but I slip them off to feel the sound of so much power. It is just below the limit of aural pain. The chief engineer with his permanently worried look is testing electrical circuits. With his white coat, neat black beard and moustache, obsessive enthusiasm and small frame dwarfed by pumping, hissing machinery, he reminds me of Willy Wonka in Roald Dahl's Charlie and the Chocolate Factory...

There is a bizarre announcement halfway through the evening meal: 'You are reminded that it will be Monday again tomorrow.'

The sea is calm on the surface but a big swell is running at us from the

south east, and the captain is worried that this is somehow affecting our speed. We are over halfway across the Pacific now, the weather warm and humid and cloudy. A ship is sighted on the starboard side, heading west, the first we've seen for four days. The captain makes radio contact:

'Hello westbound ship... This is eastbound ship Neptune Garnet, do you read me?'

'Hello eastbound ship, we read you.'

'What is your name?' Manila Prosperity.'

'Where are you coming from?'

'Great Lakes and Montreal to Nagoya and Bangkok.'

'We are on liner service, Tokyo to Long Beach.'

'How is weather?'

'Two lows, quite developed, have passed up to the Aleutians. We hope we are in high pressure now.'

'You're lucky.'

'Not so lucky. After all, we have swell on port side. Rolling and pitching badly. We've lost time.'

The Filipino ship doesn't sound convinced. She is a much smaller ship heading into a steady succession of depressions. Our captain signs off breezily: 'Have a safe voyage, avoid the lows.'

Investigate the library. It's that sort of day. Nearly all the books are in English, though there isn't an Englishman in the crew. A selection of sea classics – Requiem for a Wren, A Night to Remember, Moby Dick, The Iliad. Can't imagine container ships spawning any literature of their own – In Which We Load, Voyage of the Canned. There are fat Micheners and Urises and Clavells. Long, thick and international. The container ships of literature. There are games – chess, draughts and Mah Jong – but videos are more popular.

On the notice board outside there is information about stress and how to combat it, the danger of AIDS and an invitation to participate in Vernons Football Pools.

The swell shows no let up and makes sleep uncomfortable. Wake to find my world rolling around on the floor. On deck the containers are groaning and wailing more spectacularly than ever. They sound like Stockhausen and the Professor thinks a symphony for containers should be commissioned. Simon, on the other hand, thinks they might be communicating something to the whales.

Michael Palin,

Around the World in Eighty Days (1989)
'Ten years on', an assessment in 1976

In April 1966, already with the benefit of ten years of container transport service behind him, McLean set Sea-Land on a course east of New York for the first time to bring deepsea container transport to Europe. Interestingly, McLean took over three more years to order his first new ships, which themselves then took three years a-building. So McLean, with half a lifetime of previous trucking experience, took from 1956 to 1972 to move Sea-Land's vessel stowage capability from 58 up to 1,100 containers.

In contrast, following Sea-Land's arrival at Rotterdam, Bremen and Grangemouth in the early days of May 1966, many European and Japanese lines firmed up existing plans to react virtually overnight. This would ensure that McLean didn't take over the world's liner trade routes with his large and growing fleet of converted, wartime built oil and cargo transport vessels.

British and West German shipowners had concluded that they could not individually compete effectively with McLean's Sea-Land. In London, Overseas Containers Ltd had been formed by four major UK liner operators in September 1965, and Associated Container Transportation grouped another five such lines in a consortium in January 1966. The ACT and OCL consortia were set up to coordinate the investigation, planning and implementation of a substantial UK-flag container shipping strategy, investment and service.

Initially nine 1,200/1,400TEU cellular vessels were ordered for the UK/Australia run. Their present operations take in several more key routes and the nine British lines have between them nearly 30 vessels of up to 3,000TEU, either in service or on order.

In West Germany the country's two major liner trade rivals, Hamburg-America Line and Norddeutscher Lloyd, following closer and closer collaboration in the late 1960s, merged to form Hapag-Lloyd in 1970 – much to the amazement of the citizens of Hamburg and Bremen. By early 1976 they had invested in a fleet of over 20 cellular vessels ranging from 1,100TEU, to over 3,000TEU in size, again, either in service or on order.

Sea-Land didn't go TransPacific until late 1968 in commercial terms, though container services had been operated from years earlier to meet the prolific outbound needs of the US military effort in Vietnam. Yet what the Japanese saw happening on the Atlantic in 1966 amounted to sufficient evidence for them to embark upon a crash-programme of containership construction and, as with the Europeans, buying the rest of the gear, like boxes and support equipment.

But the alarm bells rang loudest in the US itself. The traditional American flag shipowning community, apart from Matson, which emulated Sea-Land in the Pacific, was not a little taken aback by trucker McLean's subsequent sortie into the shipping scene. And if any group of operators could be faulted for the tardiness of their reaction, then US Lines, American President, Moore-McCormack, et al certainly appeared to have their heads firmly in the sand. By the time they did react to an appropriate degree, earlybird Sea-Land had established itself as the clear market leader and the entrepreneurial-based newcomer Seatrain Lines had decisively entered the container scene.

True, after trial and error – its original ship design was fundamentally altered three times while under construction – US Lines managed to put the world's first-ever new ocean-going, cellular containership into service in the summer of 1968. Meanwhile in Europe the still independent partners that were subsequently to form Hapag-Lloyd urged on their chosen shipbuilders to get a West German-flag cellular vessel in service ahead of any of the upcoming British armada.

Yet cool as you like, and with typical disregard for publicity in Europe, Japan's major liner operators not only had a fleet of six cellular vessels built virtually behind closed doors, but got two of them in service by mid-September of 1968. The 752TEU *Hakone Maru*, built by Mitsubishi Heavy Industries' Kobe yard for Nippon Yusen Kaisha, emerged as the first purpose built deepsea cellular vessel outside of America.

In Europe Hapag-Lloyd's *Weser Express* (originally 728TEU, but jumboised to 1,096TEU in 1973) was first out, in late September 1968. In the event, the first UK-flag cellular vessel to hit the scene was Manchester Liners' 452TEU *Manchester Challenge*, which took full container service to Canada for the first time. This in fact excludes the isolated, pioneering work of British Yukon Navigation Co of Vancouver with the 352TEU *Frank H Brown* on the BC to Alaska run from 1965.

Richard Gibney

Containerisation International, (April 1976)

Containerisation marches on

'The container is conquering the third world.' There will be a lot of competent people who do not agree with this statement, who will dismiss it as a big exaggeration. Why am I convinced that it is correct?

At the beginning of the sixties, when Sea-Land and Matson were already successfully operating with containers on the coasts of the United States, the traditional liner shipowners of the western world regarded this system as unsuitable for international overseas traffic. Hapag and Norddeutscher Lloyd were among these shipping companies.

I still remember how piles of cargo manifests for certain trades were analysed at our offices in order to establish which goods could reasonably be packed in containers. At the time we arrived at a proportion of only about 25-30 per cent for the North Atlantic, though today 80-90 per cent of all cargo there is carried in containers. For the US/Far East trade our calculations were only slightly more encouraging, while we saw no future whatsoever for the container on the US Gulf route, which subsequently led to our involvement in the Cash system.

But it was not only shipowners, but also shippers as a whole, who initially seemed to be showing no particular interest in the container. However, the reasons for this rejection were not only practical ones. It also had something to do with the fact that people generally are afraid of radical change. The traditional shipowners found it difficult, for instance, to contemplate changing the conventional dry cargo vessel for a 'ferry' designed to carry nothing but boxes.

The transformation came about very rapidly. In 1966 Sea-Land opened its service between the U.S and Europe, and the North Atlantic shipping lines very quickly recognised that they would have to jump on the 'bandwagon.' Almost overnight about a dozen European shipowners were forced into a kind of close co-operation hitherto unknown. For financial as well as capacity and service reasons, it was impossible for every existing line to set up its own weekly service with containerships. That led to formations such as the Atlantic Container Line and Dart consortia. After careful consideration Hapag-Lloyd chose the risky course of going alone.

The time lag between placing orders and delivery of the new containerships, a period of some 18 months, was extremely turbulent. We assumed very rightly that the transition from a traditional vessel to a fully cellular containership could not be made from one day to the next. So

conventional freighters were packed to their mastheads with containers. The costs were horrendous, while ships and containers suffered considerably. After the introduction of several fleets of new containerships, each at least double the capacity of its predecessor, substantial over-tonnaging prevailed on the North Atlantic from about 1968 until the beginning of the seventies. The resulting rate war entailed tremendous losses for shipowners, but brought, on the other hand, the breakthrough of the 'box' with shippers. Containerisation of the trades which followed from around 1970, viz. those to Australia and the Far East, proceeded much more calmly. Whereas the US anti trust laws minimised the possibilities for co-operation on the American routes, here the conference lines joined together in larger, more orderly groupings, to plan their approach to the new transport system.

Optimal ship types for that time were developed and orders placed with yards for the exact number of newbuildings required to operate a particular service. Consortia or joint services with fixed shares for the individual lines were formed, and preparatory discussions held with shippers, ports and, where necessary, government bodies.

This first phase of containerisation was concentrated on overseas lanes between the world's major industrial centres. Despite all the upheavals, one can say that it was successful. Within a very short time the trade had accustomed itself to the container, efficient terminals had been erected in all major ports, shipowners had built up their inland organisations, and close co-operation between several shipowners in international consortia, (something entirely new), worked rather smoothly.

Optimistic expectations of a substantial reduction in costs were not fulfilled. For shipowners there was a marked shift from 'running costs' to 'capital costs', not leaving much scope for lower rates. Nevertheless, most shippers rapidly recognised the advantages and the opportunities for savings inherent in using containers for house-to-house transportation.

The second phase of containerisation was introduced during the mid seventies on the Europe-South Africa run, to certain parts of West Africa, and to the Persian Gulf. With regard to the latter two regions, the decisive factor was not so much the irresistible urge for containers, but the appaling congestion in many ports at the time. Self-sustaining containerships and roro vessels had the priceless advantage of a relatively fast despatch.

1975 saw the start of a rather bold venture, when four European shipowners – Hapag-Lloyd, KNSM, CGM and Harrison – decided to establish a container service to the Caribbean Islands and Central America

with newly built fully cellular ships. The region involved developing countries in the true sense, most of them without the appropriate road network or infrastructure, not to speak of container handling facilities. The Carol service was inaugurated in 1978. Despite considerable teething troubles, it can be described as a success.

So the dam has already burst. Initially 'multi-purpose' vessels and smaller full containerships will persist. In most of these trades, however, the traditional container operators will eventually succeed in convincing their colleagues from the developing countries of the economic advantages of large containerships and their joint deployment. Third world shipowners will then profit from the rather costly experience of the container 'pioneers.' My view is that, just as in the sixties, developments will overtake all the doubters. The following proverb also applies to containerisation: 'You cannot be just a little bit pregnant.'

Karl-Heinz Sager

Fairplay (1981)

DG7 embodies the political will

The projected growth in intermodal traffic will only be achieved if the appropriate political climate is present in Brussels. Also it assumes that Europe's national railways can create an adequate infrastructure, which could involve massive investments. The CER has estimated that the adjustment of railway gauges (to allow the transport of normal maximum height swapbodies and ISO containers throughout Europe) would cost around 3 billion ECU (US\$ 3.8 billion), and that a ten year programme of terminal development would cost 500 million ECU (US\$ 626 million).

The 3 billion ECU mentioned by the CER assumes that investment in improved clearance gauges is taken to an extreme. It is not the only solution, and governments, Intercontainer and the national railways maintain that adjustments to the loading gauges are only needed on key routes. Intercontainer's medium-term plan envisages a doubling of the amount of European domestic traffic it will carry by the year 2000, but this will depend on the attitudes of DG4, the EC Competition Directorate, and DG7, the Transport Directorate. Head of Division of DG7 is Hugh Rees, who recently outlined the Directorate's thinking in respect of the future course of intermodalism. The Directorate accepts that following the 'opening up' of eastern Europe, and the inauguration of the single transport market on 1st January 1993, demand for intermodal capacity will increase by up to 30 per cent by the year 2000. It therefore, considers one of the key issues at the present time to be to determine what steps should be taken to meet this rise in demand.

Rees emphasised that it is the policy of the European Commission, as expressed by DG7, to take all possible measures to encourage and facilitate the development of intermodal transport. This is far from straightforward. As Rees acknowledged, all European Community member states have capital problems at the present time, and private industry is saddled with high interest rates, making investment decisions difficult. Meanwhile, although the environmental lobby is clamouring for freight traffic to be transferred from road to rail, it also can make it difficult to build infrastructure for transport.

'In this situation', affirmed Rees, 'the first priority is to make the maximum use of existing facilities.' Rail capacity is the backbone of intermodalism within Europe, using road for the short hauls at either end of a longhaul rail transit.

There are two immediate hindrances: one is that existing railway terminal operations tend to be complicated and expensive. The other is that in 'real' terms, road haulage costs in Europe are decreasing. Both these factors make it difficult for intermodal transport operators to compete with road. DG7 has calculated that during the past six years there has been a drop of 20 per cent in road haulage prices, due to most of the restrictive rules and regulations relating to road haulage being removed. Consequently, although social and environmental considerations require the increased use of intermodal transport, this is not indicated on commercial grounds.

The challenge is how, within the context of a non-regulatory regime, to make the intermodal network feasible. For some months DG7 has been working on a remit issued by the Council of Ministers to the European Commission at the end of 1990 to prepare proposals for the creation of a European intermodal system, and it was expected that the Commission report would be submitted in early 1992.

Among the questions examined by DG7 are: the inadequacies of loading gauges in some regions of the railways (including the UK), which can make the movement of normal maximum height swapbodies or containers impossible; the dimensions and weights of road vehicles used to haul intermodal loads; whether such vehicles should accommodate lower tax rates to reflect their use only on short-hauls: whether the need for such vehicles to incorporate sleeping accommodation should be waived; and whether they should be sound-suppressed, since vehicles used for intermodal work spend a lot of their time in urban areas.

Also being investigated is the harmonisation of technical standards for intermodal road vehicles in Europe, and the dimensions of swapbodies, about which a decision may be expected in about two years' time. Highvolume swapbodies and containers are desirable, but the railways (and waterway barge operators) can find it difficult to accept them.

Considerable DG7 attention is being paid to the organisation of the intermodal sector, with particular reference to a directive from the Transport Directorate that any qualified rail transport operator should have access to the rail infrastructure. Among the operators which are likely to enter the market, believes Rees, are ocean carriers which might want to become railway operators to control their maritime container traffic, and to carry intra-European domestic traffic as well.

David Eller

Containerisation International (1992)

Box carriers are coming (official)

Intermodalism in Europe is about to generate one of the most significant developments in the transport industry since the introduction of the container. The intermodal train has already departed from the station but, in terms of the volumes of intra-European traffic it will generate, and the impact it will have on the organisation of transport in Europe, the journey has barely begun.

Intermodalism in the European context is the transport of unit loads, using at least two modes of transport. Most mainland Europeans think of these modes as being road and rail, but this disregards the shortsea transport legs that can be involved.

Shortsea carriers sailing between the UK/Ireland and mainland Europe (notable examples are Geest North Sea Line, Bell Lines and the United Transport group) are among the most dedicated intermodal operators. Rhine and Rotterdam-Antwerp barge operators, however, play scarcely any intermodal role, apart from carrying some boxes for North Sea container lines. There could, in future, however, be a potential for domestic unit-load traffic to move on the waterways, especially after the Rhine-Danube canal is completed in mid-1993.

In Europe the word 'intermodal' is interchangeable with 'combined transport', 'bimodalism', or simply, 'road-rail.' It implies domestic European traffic, moving within or between different European countries.

But why should 'intermodalism' have become such a buzz-word at the present time? Principally, there are four reasons: the huge growth in intra-European freight traffic which is forecast to take place within the next two decades; deregulation of the transport industry within the European Community; environmental concerns at the appaling consequences of a vast increase in road trucking; and the current political will in favour of combined transport. All four require that a significantly higher proportion of freight traffic than is now the case moves intermodally, shifting from the all-road mode to rail for the long haul.

Hugh Rees, head of division, European Commission Transport Directorate DG7, quotes a figure of 80 million tonne/km of road cargoes moving each year on major routes in the European Community in 1987, and the Directorate suggests that this will rise to 1,040 million tonne/km annually of road flow traffic on main traffic links by 2005. (Such figures are, of course, indicative). Demand for domestic transport capacity in Europe is expected to rise by up to 30 per cent by the year 2000.

In 1987 intermodal's share was less than two per cent and Rees believes that 'if nothing else is done to improve the position of intermodalism, its share overall by 2005 will stay about the same. Nevertheless, Rees is confident that: 'If the series of measures DG7 is recommending (see 'DG7 embodies the political will') are introduced, it is reasonable to assume that the volume of intermodal traffic may be expected to reach the level of 45 million tonnes annually by the year 2005.'

Rees was referring to main flows of traffic within the European Community, but there is some overlap with maritime ISO traffic, since he added that some of the 45 million tonnes could include traffic from outside the European Community, notably traffic dispatched from the ports. Not all the projected future volumes are capable of being converted to combined transport, and it is probable that the ceiling would be 50 per cent to 60 per cent of the total. There are other projections. In 1989 the Brussels based consultant AT Kearney suggested that total Europe-wide freight traffic will reach 200 million tonnes annually by 2005, of which 43.2 million tonnes will consist of intermodal traffic, as compared to 14.4 million tonnes at the present time. Private transport industry sources believe that combined transport in Europe now represents less than four per cent of the total, and that when trans-alpine rolling highway volumes are deducted, combined transport's share is under two per cent.

In the light of the forecast growth in traffic volumes it is clear that intermodalism must play a greater role. The roads will be unable to accommodate such a rise in volumes unless the highway network is vastly increased, and even if this could be afforded, the environmental consequences would be appaling.

Deregulation of the transport industry (for rail this is outlined in European Commission directive 91/440/EC), is seen as a big part of the answer, resulting in new railway operators, private and/or state-owned, competing to convert all-road traffic into intermodal.

Moreover, the pattern of transport movements in Europe will change. The Channel Tunnel between England and France will, besides passengers and vehicles, generate substantial volumes of intermodal traffic. The free, frontier less, transport market in the European Community which begins on 1st January 1993, should substantially increase trade between EEC countries.

Also, although it is doubtful whether manufacturing output will significantly increase within the European Community, its manufacturers may divert production to the low wage countries just outside. The policy of Far East/Asian companies in establishing manufacturing bases within the European Community, for goods which are sold in the Community, is well established, and will continue.

These factors will all increase the distances over which goods have to travel. Intermodal transport is attractive for distances of over 300km, though in practice road/rail operators tend to look for traffic moving considerably further.

A strong expansion of rail relative to road will only happen with a clear political lead. The European transport commissioner Karel van Miert supports intermodalism, and the European Community Council of Ministers has declared that it is Community policy to encourage it.

David Eller Containerisation International, (1992)

When the rumour came round

I can't recall any local enthusiasm when Sea-Land got set to begin operations in Brazil. Sea-Land had been a member of the Interamerican Freight Conference prior to 1978, but now the rumour had been confirmed, and it passed through the industry in Rio de Janeiro, that Sea-Land had decided to enter the market.

Moore McCormack and Delta shared the 40 per cent preference cargo reserved for US-flag carriers and Netumar, Lloyd Brasileiro and Co Maritima Nacional shared the 40 per cent Brazil-flag share. Leading the third-flag 20 per cent share was Elma (a method to reduce the amount available for non-South American cross-traders, while allocating extra shares between Brazil and Argentina on a reciprocal basis). Sea-Land's entry into the trade would mean that the US-flag share would then be divided between three instead of two. I don't know any company that would be willing to reduce its share like that without putting up some sort of fight.

Feigning little interest, the Brazil-flag carriers, like cats with their prey before pouncing, stated that the matter was only of interest to the existing US-flag carriers, because it was only their cargo pool which Sea-Land would be diluting. On the surface this appeared to be true, but they knew if Sea-Land entered the trade, it would soon dominate the container market. The Brazilian carriers were not prepared for this type of competition and the ports were not prepared to handle it either. In 1978 Brazil's leading port of Santos still did not have a single gantry crane. Sea-Land was ready to place one in Santos, a gantry to handle 35ft containers.

To varying degrees, all the established members of the Interamerican Freight Conference and key sectors of the Brazilian Government (such as the administration of all the ports) did not support Sea-Land's plan to enter the market...Yet here it was, the day when most of those not associated with Sea-Land awoke with a sweat, each trying to figure out his role after Sea-Land became established in Brazil, each deciding that his career would be better served by opposing Sea-Land's entry.

A suitable vehicle for concerted action was to hand. The Camara Brasileira de Conteineres had been formed in 1977 to promote dialogue between all sectors being touched by containerisation; shipping lines, truckers, depots and container lessors. It had modest beginnings, but it suddenly exploded into prominence with a seminar in 1978. The Camara (or Chamber) was non-governmental, non-political, and comprised both Brazilian and international members. It was a perfect forum for serious discussion without accusations of partiality.

The first discovery was that Sea-Land intended to use 35ft containers in the trade. Brazil had signed an intent to support the ISO (International Organisation for Standardisation). It took about three minutes for one and more to point out to the Brazilian Government that 35ft containers were not ISO. It could easily be visualised, a ship/shore gantry for 35ft containers on a government-run pier which no other shipping line could use. The second discovery was Sea-Land's intention to tranship in 35ft containers over Puerto Rico, to/from destinations worldwide. What? The Brazilian Government thought it had made its views very clear; Brazilian cargo could not be transhipped, in accordance with all the various quota and cargo preference agreements it had arranged bilaterally for numerous overseas trades, including the US.

Sea-Land did not enter the Interamerican trade in 1978, but its near arrival brought a wake-up call to the many who had felt threatened, including the Brazilian Government. Lloyd Brasileiro and Alianca placed their first orders for full containerships, for Europe; and Santos began construction of a dedicated container terminal, with gantry cranes for 20ft and 40ft containers.

The Camara Brasileira de Conteineres operates today with a little less prominence than in 1978, but maturity has its rewards. Santos has handled its first annual 500,000TEU. Alianca and Nacional are now 'full container' shipping lines and Sea-Land operates to Brazil, on many trades, with ISO containers.

William E Krause 1995

The containerising of America

The effective deregulation of rail container traffic in the US took place on 23rd March, 1981 when the Interstate Commerce Commission (ICC) extended the application of the Staggers Rail Act (1980) to cover intermodal 'trailer-on-flatcar' (TOFC) and 'container-on-flatcar' (COFC) movements.

The ability of railroads to alter their rates without giving lengthy notice has meant a flurry of activity surrounding the published rates for key competitive sectors. For example, a spokesman for Delta Steamship Lines reported that the rate from New York to Alexandria, Virginia, changed seven times in the space of two days shortly after deregulation.

Following this, it will be possible to use pricing more creatively to channel traffic into the most cost competitive corridors, permitting further economies, service improvements and profitable volume growth. Shippers who in the past have favoured railroads indiscriminately, working out their own inter-railroad routings under common tariffs, will become wedded to particular origin lines in order to concentrate their new-found purchasing power.

Yet the picture which emerges from talks with railroad executives and steamship lines is not nearly so reassuring. The US railways are expensive to run. Entrenched union power has held down productivity and forced up wages. Although impressive in absolute numbers, relatively few maritime boxes move by rail. New York, the world's largest container port, moves only 10 per cent of its boxes inland by rail. Little or no growth is expected in transcontinental maritime container rail traffic over the next two years.

Domestic piggyback generally loses money for the railroads on a long term cost basis and has yet to capture more than one per cent of the gigantic US intercity freight market. It is not even growing at all and does not do particularly well on distances above 1,500 miles.

Thus, before deregulation rekindles too many unrealistic hopes it is important to try to understand the reasons why the existing piggyback system is inherently uncompetitive. Also, how crucial the issue of new technology has become if the railroads are even to retain their present share of potential intermodal rail traffic, let alone begin to re-take the initiative from truckers in the longhaul domestic market.

It is easy to read far too much into relatively large increases in maritime transcontinental 'bridge' traffic in recent years. Microbridge has really only

been going for a couple of years so that percentages there are misleading. Moreover, the railroads and steamship lines are together fighting a critical battle to keep overland costs down at a level where bridge operations can be justified at all.

In fact the predominantly eastbound mini- and micro-bridge traffic already only exists thanks to a subsidy from heavily unbalanced westbound domestic traffic. Directional domestic piggyback pricing between Chicago and Los Angeles/Oakland converts into 40ft box rates of around \$950 eastbound but \$1,500 westbound (more at full weight). This must be why westbound bridge volumes are so low and why, when the railroads baulked at limitless free westbound repositioning, only substituted domestic cargo could realistically bear the full commercial rates.

When this all-water substituted bridge traffic is excluded from the reckoning, the normal port hinterland rail container market responds to the same underlying 'road only' versus 'rail/road' competitive factors as the domestic piggyback system with which it is obliged to coexist. With all the natural advantages for rail conferred by the very nature of maritime traffic (irrespective of whether COFC or TOFC), it is a serious matter that such a major proportion of the seven million or so TEU handled by US ports each year never reach a railhead.

Historically, piggyback has always fallen between two stools. It could never compete with lower boxcar rates for full car traffic, yet it was hopelessly uncompetitive with road trucking in almost every aspect of service and asset utilisation. It seems incredible that so few railroads have actually faced up to this conceptual dilemma.

As recently as last year a widely circulated report by Booz, Allen and Hamilton Inc (commissioned by Transamerica Interway, a major trailer lessor) estimated that with 3.3 million trailerloads in 1979 (including containers), piggyback had penetrated just eight per cent of a conservatively defined 'potential' market, and that 91 per cent of that eight per cent had been supplied by indirect carriers such as shippers' associations and steamship lines, not primary (direct) shippers. This means that at least 38 million trailerloads preferred to use road.

Many railroads say they know that running scheduled dedicated piggyback trains is more cost and service-competitive than the present wagon-load classification system, but they go on to say that no such developments can be contemplated until they can be justified on present piggyback volumes. It obviously goes against the grain with railroad chiefs to spend millions of dollars on new technology freight classification yards only to start removing a substantial part of the volume which justified them in the first place.

Maritime traffic also played a major part between the ports and the Mid-West, although it seems incredible that the cost burden of empty container positioning was not tackled very much sooner. Anyhow, the advantages of dedicated scheduled trains can now be finally demonstrated to railroad management and customers alike.

Better unit costs permit lower rates so that shippers will now often truck back towards Chicago to catch a Conrail liner train to New York rather than pay more to use a slower local ramp. Likewise a shipper in Des Moines, Iowa, is quoted as discovering that he can still get the benefit of cheaper piggyback rates, while cutting his Los Angeles transit time down from six/seven days to 2.7 days (almost as good as trucking), by putting his trailers on a direct rail service at Omaha, Nebraska, instead of moving via a local ramp.

The only trouble with this cosy picture of intermodal piggyback as a proven winner, which has only to be properly organised and marketed, and one which is inevitably going to benefit from rising fuel prices, is that it does not stand up to serious analysis. The underlying assumption of all 'we're bound to win' railroaders is that properly organised rail piggyback has an inherent unbeatable cost advantage over road in the longhaul. Shockingly, it does not. It seems that the western railroaders, who enjoy the most pronounced natural advantages in terms of the longest routes (many over 2,000 miles), have just about reached this conclusion.

The Western Pacific railroad's intermodal trucking subsidiary WPX Freight System has captured 75 per cent of the general goods market between Oakland/San Jose (California) and Salt Lake City/Denver (Utah and Colorado). This operation started in order to backload empty piggyback trailers from the east. Its former manager, John Gray (now based in Oakland as WP's senior vice president intermodal), explains that irrespective of fuel price rises, railroad productivity needs a massive boost if road/rail intermodalism is going to make longterm headway in the domestic market, no matter what distance is involved.

Meanwhile, the Southern Pacific seems to have been approaching the container problem from another direction. It had realised that on its main container bridge route between California and the Gulf there was enough traffic to justify dedicated container rolling stock, and sufficient overhead clearance to double-stack containers. This would simultaneously reduce wagon tare weight per TEU by over 50 per cent and increase the maximum number of containers for a given train length by a factor of around 65 per cent.

The effect on train productivity is so dramatic that it will not only significantly hold down landbridge costs for operators like Sea-Land, but also signals the end of piggyback as a competitive trainload longhaul intermodal concept. This point is now apparently appreciated by the Santa Fe, which has converted its 'fuel foiler' to a container only version and is working hard on double stack capability.

The Southern Pacific double-stack car may be a major conceptual breakthrough, but it is not necessarily the perfect engineering solution. It is ideal for Sea-Land with its 35ft/40ft flexibility but it cannot handle 20ft maritime containers. Nor, for want of another six inches, can it stack two 9ft 6in boxes.

Although all this competitive activity in the Far West is making the whole intermodal industry extremely nervous, there are few signs that it is generally realised how the basic issues now hinge solely on line-haul productivity and the intrinsic cost-competitiveness of trains verses trucks.

Anyone who believes that dedicated trains seriously compromise flexibility should take a look at the creative block scheduling organised by Conrail or some overseas railways.

It should also be carefully noted that the space available on a single-stack 90ft rail wagon can only ever earn the same revenue as two truckloads of cube cargo, but it could earn as much as three, four or even five truckloads of weight cargo in multiple smaller containers.

With such gains in view, it is worth increasing tare weight, if necessary in order to provide extra strength, because the net effect will be a very marked improvement in the overall payload/tare ratio. Coal, for instance, has a ratio of four to one but the best that conventional piggyback can achieve is 0.75 to one.

So first the railroads must act together, decisively, to establish the essential features of their optimum road-competitive box sizes and weights. APL's 45ft unit could give some pointers about how to stay within international twistlock dimensions.

The market potential for containers inside America is twelve times as large as the transpacific and North Atlantic trades combined at the most conservative of estimates (based on 10 per cent of all inter-city freight moving at distances above 200 miles). This must rank as the greatest organisational challenge in the history of surface transportation... the containerisation of domestic America.

Francis Phillips

Containerisation International (1981)





CONTRACTUAL CARRIERS

Road operations in North Island

I was there at the beginning of container haulage. As a junior trainee manager with the then mighty Dales Freightways back in the 1960s we were approached by OCL to transport a 20-foot ISO container around Auckland and the upper North Island, a familiarisation exercise so to speak. This container was one of the first to arrive in the Auckland area.

About the time of arrival of the container we had a brand new semi unit and tractor coming on stream, we were supplied with twist locks, especially imported, with fitting instructions, and after much publicity and public relations work we set off to the wharf with Town and Around, (a then current affairs television programme), The Ministry of Transport, City Council Traffic Officers, and the Ministry of Works – I recall about four cars in convoy. I was in my new suit and in charge of operations. After a perfect transfer from ship to truck and with our top driver immaculately attired, we set off. Within five minutes of leaving the wharves we had aerodynamically changed the shape of the container by jamming it under the Western Viaduct Bridge and within seconds we had television people all over the place, traffic officers poking and prodding, our driver waiting for his dismissal notice and me looking back over possibly a very short career in the industry.

I had kept my cool and opened the truck's cab doors so that when the incident featured on television that night all the public saw was a 20-foot container, its leading face at about 45 degrees, the OCL logo, the inside of a truck cab and the side of a trailer – thank God we didn't have colour television in those days. After some substantial repairs at Mason Bros. Eng., some days later we continued our journey without further incident.

But it's an ill wind that blows no good. The container had stayed on its locks and the Ministry of Transport was very impressed with the unorthodox and subsequently costly demonstration of load securing safety. The twist lock was proven, and so the ISO container revolution arrived here in New Zealand. From that first container in Auckland the trade has grown to some 300,000 units per annum here in Auckland alone, which incidentally is more than half the country's total throughput.

Ray Smith 1995

Legal classification of freight forwarders

Contract for work (mandatum)

The classical Roman mandatum-type contract is broad enough to encompass all freight forwarder functions, but unfortunately there are variants that require further classification. With respect to the means of transport, for example, one has to distinguish between the freight forwarder's different functions, i.e. acting merely as an agent on behalf of the customer or carrier; acting as a contracting carrier, assuming carrier liability without actually himself carrying; and acting as his own carrier.

The transition from agent to principal

The difficulty in distinguishing between an agent and a principal is well recognized in commercial law. While in Britain and the USA the distinction is comparatively clear, complications arise in the laws of other European and Scandinavian countries, which recognize an intermediate stage between agent and principal – the commission agent who acts in his own name but for the account of his principal. By acting in his own name he becomes a party to the contract, but he is also accountable to his principal for the contract made on that principal's behalf.

This gives rise to an important distinction between the "formal" contracting party (the commission agent) and the principal – who has a direct interest in the contract but is not a legal party to it. The commission agent, however, cannot renounce his status as a contracting party by disclosing the identity of his principal. There is therefore, an important difference in law between the status of a commission agent under continental European and Scandinavian law and one acting for an undisclosed agent under English and American law.

In US law, interest has focused on the regulatory aspects of freight forwarding. There is a distinction drawn between independent ocean freight forwarders who, with respect to maritime carriage, fall under the jurisdiction of the Federal Maritime Commission (FMC), and "domestic freight forwarders" who come under the aegis of the Interstate Commerce Commission (ICC). There is a further category called the non-vessel-owning-common-carriers (NVOCCs), which come under the jurisdiction of FMC, where they must file their tariffs. Domestic freight forwarders and NVOCCs are regarded as "indirect carriers." Thus the freight forwarder could be subjected to carrier liability even though he was not himself a carrier but has merely acted as contracting carrier.

The freight forwarder as carrier

Generally, the law of international carriage of goods is subject to mandatory rules. The development of the law is rooted in the old concept of the common carrier who was subjected to strict liability with a few exceptions for force majeure, acts of God, war, civil disturbances, government directions and similar events. Originally, attention was focused on the status of common carrier and possibilities for avoiding liability were limited. With the widening of the principle of freedom of contract, however, carriers took advantage of the option to lower their liability by disclaimers and low monetary limits of liability. With respect to rail carriage (which in most cases was state-managed), the strict common carrier liability survived and this is reflected in the international conventions governing such carriage (CIM and COTIF/CIM).

A reaction to what was considered an abuse of freedom of contract first appeared in the context of maritime carriage in the USA, embodied in the 1893 Harter Act, the basic principles of which were subsequently extended to the rest of the world by the 1924 Bill of Lading Convention (Hague Rules). The growth of international carriage of goods by road led to the 1956 Convention (CMR) which was mainly based on the principles of earlier railway law embodied in CIM but with a somewhat lower monetary limit. Air carriage also became the subject of an international convention which was clearly based on the old notion of strict common carrier liability but with higher monetary limits than those applied to other modes of transport (the 1929 Warsaw Convention). The law of carriage of goods by sea, although mandatory, puts the carrier in a better position than that applying to other modes of transport, especially with respect to the defences available in cases of error in the navigation or management of the vessel, and of fire. In addition, the monetary limit of liability applicable to carriage of goods by sea is, in most cases, lower than those applicable to other modes of transport.

Even though a company might describe itself as a freight forwarder or as a carrier, there is nothing to prevent a freight forwarder from becoming a carrier, or a transport company from engaging in freight forwarding. But, as we have seen, it is not easy to determine when a freight forwarder should be subject to carrier liability. But in circumstances when the freight forwarder is deemed to be acting as a carrier – whether he only contracts for carriage or actually provides it – he cannot escape any rules applicable to carriers if they are mandatory law.

In theory, it is simpler to identify the distinction between the freight forwarder as agent and as carrier by the documentation and routines that apply to the particular modes of transport. Thus the bill of lading, CIM, CMR or air consignment note might clearly indicate who should bear carrier responsibility. In practice, though, documents are not always so precise, and are sometimes signed by an agent "for the carrier" or "for the master" without identifying that carrier or master.

Further, in international road carriage, the documentary procedures are not always precise and consistent. For this reason, it is not always clear how a company offering transport by road and ferry from, say, England to a European country, should be regarded. A freight forwarder offering such transport without expressly declaring that he does this in his capacity as an agent therefore faces the risk of being subjected to the mandatory rules of any applicable convention relating to carriage of goods by road. The disclaimer of carrier liability in the German ADSp condition 52 would also become ineffective whenever the freight forwarder's form of contract subjects him to mandatory liability.

The freight forwarder as multimodal transport operator (MTO)

The problems of distinction between the freight forwarder as agent and as carrier are basically the same, irrespective of whether transport is single mode ("unimodal") or a combination of modes in the same contract ("combined"/"multimodal"). However, as we have seen, the rules applicable to different modes of transport vary in basis as well as the limitation of liability. Thus, if a separate contract is made for each segment of the journey from despatch to final destination ("segmented" transport), different rules would apply for each segment according to the mode of transport. Conversely, if one contract is made for a journey requiring two or more different modes of transport, it is necessary to determine whether or not the liability of such a carrier (multimodal transport operator) should be segmented or not. If segmented, his liability for loss or damage would

depend upon the locality (and thus the liability laws) of the stage of the journey at which the accident occurred ("network liability"). Alternatively, his liability might in principle be "uniform", that is, be independent of location. It is not possible here to deal with this interesting problem at length. Suffice it to say that the network liability system has been preferred in the current rules and conditions applicable to multimodal transport.

It should be remembered that the transport industry has been considerably reorganized recently. Today, attention is not focused as sharply as in the past on ownership of the means of conveyance. Quite often, ships are not owned by the operators. They may be used by shipping lines under various chartering and leasing arrangements or by a joint organisation that charters the ships from the partners in a joint venture. From a legal viewpoint, when deciding carrier status and liability, one should rather focus on the question of whether or not the enterprise operates the means of conveyance.

But what is meant by 'operation' in distinguishing between a performing and a contracting carrier if the controlling factor is no longer ownership?

Although it may be easy to distinguish between a person responsible for the "technical operation" of a means of conveyance and one merely offering transportation services, the borderline will undoubtedly be somewhat blurred when the traditional shipowning function is no longer decisive. Apart from this, the allocation of responsibility in contract depends, not on whether you own the assets that you promise to sell or provide but whether you have undertaken to provide it. Thus all the above-mentioned rules are based on the theory that they apply not only to an MTO itself providing the transport (e.g., a shipping line undertaking MTO services) but also to one that has merely undertaken to procure multimodal transport (e.g. a freight forwarder).

This development is also recognized in connection with the document relating to the transport. Traditionally, bills of lading issued by freight forwarders were regarded with suspicion in documentary credit transactions: such documents should, according to earlier versions of the ICC Rules for documentary credits, the Uniform Customs & Practice (UCP), be rejected. The present version, however, expressly acknowledges the validity of freight forwarder documents. Thus the modern development of freight forwarding services has brought a complete change of attitude, even within the field of banking law, where the doctrine of strict compliance applies.

Future developments

It is not easy to forecast the direction of future transport law. Much will depend on developments within maritime law.

In any event, the traditional efforts of freight forwarders to play a major role in the transport industry without accepting carrier liability seem to have been replaced by voluntary acceptance of carrier liability – probably in recognition that one cannot have one's cake and eat it. It is of no use to hold yourself out as a provider of full transportation services and subsequently refer your customer to your sub-contractors if something goes wrong! However, in this area we are in a stage of transition. Many freight forwarders all over the world like to renounce carrier status if something goes amiss, and equally gladly accept it when contracting and collecting their remuneration for services rendered.

Disharmony within the law of freight forwarding continues. In spite of the integration of the law in the EC countries, it has not yet been possible to bridge the differing approaches in the law of freight forwarding prevailing in England, France and Germany. Had it not been for the quite understandable wish of merchants to guard against government intervention in their business – particularly by mandatory legislation, which would tell them what to do when they believe they know this better – it is probable that the existing confusion would have been long since removed by international legislation.

Thus it seems unlikely that mandatory legislation will supersede contemporary practice within the near future. In the meantime, practices in freight forwarding will probably continue to be controlled by self regulation which, in my view, has been reasonably successful, in some areas at least.

Jan Ramberg 1990

Landside and its liabilities in Asia Background

General introduction

The intermodal industry has a very ambiguous past. Its origins are maritime and even today many people think of the sea and ships whenever containers are mentioned. Yet despite the size of modern container ships and the huge volumes of containers handled in the great container ports of the world, the fact remains that in many trades no more than 30 cents in every freight dollar are paid to the ocean carrier. The rest of the money is paid away to a variety of players in the industry: the forwarders, truckers, warehousemen, stevedores and terminal operators who together constitute the landside of the industry. This chain of operators is discussed in many conferences and seminars: like the dark side of the moon, every one knows it is there but few have really had a close look. It is nonetheless possible to have carrier's liabilities, and principal liabilities in the intermodal business, even if you never acquire any interest or say in the running of ships. It is with this sector of transport that this paper is concerned.

To generalize, the containerised side is a world where modes of transport are not individualistic and where contracts and trading conditions and chains of indemnity are of the utmost importance. It is also a world undergoing rapid change, much of it not very clear to the eye. In the Asia Pacific region, many sectors of transport and many customs of land transport will be changed completely during the next ten years. There is a revolution going on in land transport: it is called standardisation.

Trade patterns

In a fairly short time the Western Pacific has made containerisation its characteristic form of transport. A few figures help us understand the nature of growth in the regional economy of Asia. Between 1992 and 1993, container cargo traffic within the Asian region grew by nine per cent from 3.07 million TEUs to 3.34 million TEUs. This intra-Asian trade is expected to grow by these sorts of rates for some years yet as transport reflects the underlying growth in economies around the region. By contrast, the trade with Europe reflected less dynamic economic conditions and slightly declined between 1992 and 1993 from 3.31 million TEUs to 3.24 million TEUs. Smaller rates of growth were also reflected in the trans-Pacific trades, where the numbers moved grew only from 6.9 million TEUs to 7.02 million TEUs. At any rate, the triangular pattern of the containerised trades seems set to continue for many years to come, between East Asia, North America and Western Europe. Other trading economies outside this triangle have a long way to go before they will be able to join the rather small club of fully containerised nations.

Influence of forwarders and NVOs

One of the most unsettling changes in the industry has been the new roles taken up by the freight forwarders of the world. During the past quarter century of containerisation, freight forwarders have become many new things. Once they were no more than bit players in the shipping world. They were often agents of shippers, living on small commissions paid to them by the shipping line agencies. Nowadays, when they wish to speak grandly of themselves, forwarders call themselves the architects of transport. Perhaps the most unsettling new role which has been taken up by forwarders in the intermodal world has been that of the non-vessel owning carrier (NVOC). Centuries of custom have been overturned. It is now possible to act as a carrier and to issue a bill of lading without having to operate ships. Some companies believe this is the true road to globalisation in the container industry. They operate fleets of offices manned by salesmen and administrators. They subcontract the ocean carriage and organise the landside. They concentrate on their shippers and their requirements. The other end of the spectrum believes in the need to operate and control the actual means of shipping and transport. Huge amounts of capital are invested in ships and skilled crews and everything is focused on filling those ships and turning them around in the shortest time possible. The next ten years will perhaps prove which of these philosophies was commercially right. One thing we can note here. For the past ten or so years, the TT Club has provided its members with a model bill of lading called Series 100. Over the past decade this document has been copied and circulated through many offices. It is used today by freight forwarders and ocean carriers alike, often without amendment. It demonstrates how the clear divisions between modes of transport are beginning to grow faint, like the eyesight of old men.

The "blurring" of modes

In the containerised world, few companies are entirely what they seem. Shipowners also act as stevedores, truckers or, when they haven't got a convenient ship to offer, even as forwarders and NVOs. Truckers may also be warehousemen and depot operators. Some also operate fleets of port or river barges. Nearly everyone from time to time will issue a document which will under the law have the effect of making the operator concerned with the contracting carrier. All you need to become the contractual carrier in many countries is to issue a lump sum invoice for freight and then to subcontract the carriage to someone else for a different freight rate. So it is that the largest container shipping company in the world is also a substantial operator of depots and ocean terminals. The largest trucking company in Europe is also a freight forwarder. The largest trucking company in the United States is owned by an air forwarder.

Many countries still try to maintain a system of laws and regulations which maintains a clear division between modes. This is an exercise not necessarily destined to succeed within the intermodal industry. This is because the various modes of transport have in many countries become links in a standardised international chain.

The mosaic of liability

All of us today work against a mosaic of laws, regulations, trade practices and customs which still vary from country to country and sometimes even port to port. There is no international convention governing our industry, only a collection of international and national laws which often pre-date the industry and do not allow for the peculiarities of containerisation and intermodalism. The history of international legislation designed to cover the intermodal business is a history of failure and false starts. In the mean time, millions of containers must be moved around the world. How does the industry deal with this partial legal vacuum? By the use of contracts, indemnities and standard trading conditions. Contracts are taken up and used by operators to compensate for the absence of clear international standards. Of course, from time to time, the provisions of such contracts must give way to the law of the land or to international standards of liability. However, it is surprising how often the parties concerned in a shipping transaction will look away from the law of place and be guided by the conditions agreed between them in their contracts.

International liabilities

National differences grow less

One of the observable changes in the liability regimes in countries around the world has been the lessening of differences. In many countries ten years ago, many operators on the landside of transport would say "we are different here" and "our liabilities are less." There are many places and sectors of transport which still offer this argument. In Australia, truckers will offer no compensation. In the CIS, the railways are still notorious for offering no genuine liability to customers when they lose or damage their cargoes. In some ports, especially those ports still controlled or operated by governments or municipalities, the argument will be raised: "we are not liable, it is different here." In the intermodal business, the logic and the pressure all point the same way. Operators and their subcontractors and their customers all want a common standard of liability in response to the same kinds of harm and damage. Modes of transport and sectors which insist on having a special regime all for themselves and their portion of any intermodal journey are almost guaranteed to decline and customers and shippers move elsewhere to find a system or path of transport more in line with their expectations. We know, even without knowing the precise terms and conditions under which stevedores lift containers onto ships in Shanghai, that the terms will more and more resemble those of Rotterdam or Long Beach or Hong Kong, not because the individuals wish to change but because the demands of the international shipping marketplace are more or less forcing them to change. These pressures may be seen working in the deregulation of trucking in the United States, in the abolition of customs barriers in Europe, the privatisation of ports in South America, the opening and development of the economy in China, the growth of economies in the Asia Pacific region and the introduction of great reliability of timing into shipping.

An international regime?

Today any semblance of an international regime governing intermodal transport is supplied by the sea mode. The universal model set down in the Hague and Hague-Visby Rules is the closest thing there is to a universal intermodal standard of liability. The rest of the liability story is supplied by the contracts used by the landside. The importance of standard contracts, standard trading conditions and reliable indemnity wordings cannot be overstressed. However, the intermodal contracts in use between parties all over the world always seem to return to the Carriage of Goods by Sea Conventions whenever uncertainty must be dealt with. The problem, for instance of indeterminate damage caused during a chain of transport, is often solved in intermodal contracts by reference to the standards of the Hague-Visby Rules. The closest thing there is to an international standard quantum of liability must be the 2SDR per kg measure. Even in Europe where road carriage is governed by the CMR (8.33 SDRs per kilo) and rail carriage by the CIM (16.66 SDRs per kilo), contracts usually refer to the lower measure of liability whenever indeterminate damage occurs. There are some shipping lines whose house bills of lading simply ignore the liability regimes of the countries in which they trade. They try to set up an ideal

regime for their shippers and trust they will not be difficult or knowledgeable enough to rely on the many national and domestic laws governing the liability of carriers in various jurisdictions.

The landside

Sea Carriers vs. Contractual Carriers

It is hoped that what has gone before will go some way towards illustrating how the intermodal world is changing the very idea of what is a carrier and what are the responsibilities of the carrier. In times gone by, the ocean carriers - the ship - was the central player of the system of transport and everyone else in the system acted as subcontractor or agent, offering little responsibility and in effect sheltering behind the commercial power of the shipping line. Today, the economic realities are that the ocean carrier makes a very small return on capital and only a modest profit too. Today, in many cases, liner shipping companies are more and more issuing non-negotiable bills of lading to NVOCs who carry the door-to-door liabilities of the shipment themselves. Rights of recourse are more important between the parties, and contractual certainty between the shipowner and people such as stevedores is more important still. More of the risks of intermodal transport must be carried by players other than the shipping line, more in proportion with the freight earned. Traditional low - or no - liability operators have no real future in the intermodal system over the long term.

Cargo handling facilities

The next greatest transformation in shipping, besides the transformation of container ships, has been the evolution of cargo handling on the landside. Here the picture of change and transformation is striking. The process of change in this area has been little short of revolutionary. Whole cities whose histories have been linked to the sea have changed function wherever they have been unable to conform to the changing requirements of containerisation. In their place have risen new ports and new practices requiring only a few highly skilled technicians and workmen and huge amounts of investment. Even in Hong Kong, the most densely populated city in East Asia, to walk around the container terminal is to walk around a ghost town populated only by tall machines. Containerisation has moved the traditional godown and warehouse away from its historic home at the edge of the sea. Depots and freight stations are now established in the

hinterland away from dock thieves, salt water, and sometimes maritime expertise. The new ocean terminals offer more or less standard terms to the shipping lines which fix such things as rates, berths, services and governing law. Such terms also usually fix the liability of the terminals and stevedores according to limits which correspond to the needs of the shipping lines. There is still a great need to investigate the Himalaya clauses and circular indemnities contained in such contracts. In many countries, claimants may tire of maritime standards of liability and instead try to sue in tort or civil law for higher levels of compensation. In a number of countries the governing law will not permit stevedores or terminals to take the benefit of the shipowners' right to limit liability and instead require such operators to offer full liability to third parties. Whilst the standards of liability offered by ports around the world cannot today remotely be described as uniform, it is possible to say that where ports must compete for traffic, their standards closely resemble those of their competitors. The same may be true for warehousemen and depot operators.

Freight forwarders, NVOs and landside transport operators

A company can be considered a player on the landside when it is acting as a Freight Forwarder, operating as an agent making all arrangements "as agents for" a customer, or as a principal (usually under a contract of carriage); an NVOC (Non Vessel Owning Carrier); a Trailer Operator (typical in the short sea trades in Europe), a Tank Container or Tank Trailer Operator; a Road Haulier (also called Truckers in the US); a Railway or Stack Train Operator (very widespread in the US, growing also in Europe); an Inland Waterway Operator (most developed on the River Rhine in Europe); a Parcel Carrier; and an Air Carrier and a Warehouse or Depot Operator using his own warehouse or depot and including the use of pickup and delivery vans.

This list of operators is not complete and can only be limited by the imagination of the companies concerned. One new kind of operator in the industry these days is the air/sea carrier who issues a hybrid transport document drafted to cover this emerging trade.

All the operators in this list are capable of issuing contracts of carriage and of acting as contractual carriers over all or part of the route of transport. They have liabilities as principals and when they make a mistake, their contracts and standard trading conditions specify their liabilities. The agent, the man in the middle, is losing ground and revenue in the intermodal industry. Few will be able to live as agents only by the year 2000.

Conclusions

Infrastructure, governments and markets

In the Asia Pacific region, the landside intermodal industry is undergoing changes, the like of which have not been seen since the introduction of steam into transportation. First of all comes the standardisation of equipment and handling techniques. This is followed by other "hard" infrastructure, roads, railways bridges and depots. Only when this part of the story is underway do other changes follow. Customs and Excise practices change to allow for the different distributions and timings of cargo movements. Customs officers, like shipping officers, must offer a service around the clock, not nine to five. Changes follow too in the really softer side of the infrastructure. New IT systems are introduced, quality management systems, standard trading conditions, insurance, accounting and management practices. Few of these changes are introduced without pain, but of course the pressure to introduce them comes from fairly large but impersonal forces. Everyone involved in the chain of transport is obliged from year to year to evolve ways which result in services being faster, better and cheaper. Those who struggle with the formula lose the race and must leave the market.

Standardisation and approximation

This force of standardisation presses on us all. We more and more do things the same way not because we want to or because we like to but because the marketplace demands it and the industry requires it. Each year, the liabilities faced by operators around the world grow more like their trucks and their cranes and their computers. They approximate those of their neighbours and trading partners. The laws under which they operate and the conditions under which they trade grow closer. This is not what people thought would happen when they introduced containers in 1968. But when we say the world is getting smaller in general, what we mean in particular is that the crane driver in Shekou works like the crane driver in Chicago, that the truck driven in Shanghai is much like the truck driven in Milan. So it goes with software, insurance, law and so forth. Little by little, mainly by technical means, the people of the world, despite history, language, and culture are drawn together by the exchange of goods and services.

Sam Ignarski 1994



AIRSIDE

Winged containers

The crewman from the 5,000 TEU container ship or the crane operator from the port terminal could be excused if, when visiting the airport, they failed to recognise many of the containers familiar to the air freight operator. The reason is simple: the criteria controlling the carriage of goods by air are so different from those influencing land and sea operations.

Although only recently adopted universally, the history of road, rail and seaborne containers can be traced back into the 18th century. In contrast airfreight is a modern phenomenon. Prior to World War II air freight was limited in extent, and controlled by aircraft capacity and cost, to mailing valuable goods of light weight.

In 1945 with the end of the war, military surplus released a flood of cheap aircraft into the civilian field, led by thousands of Douglas Dakotas. In the blood bath of war the aviation industry had come of age and within twenty-five years would have aircraft such as the Boeing 747 flying with a cargo lifting capacity in excess of 100 tons.

In that period since 1945 many aircraft types and families have developed to meet a wide range of applications. But all share certain common criteria. They are expensive, both in original cost and on-going operation and maintenance, and this is reflected both in freight rates and the need to reach and maintain a high level of usage. Flying time cannot be altered, but time spent loading and unloading can be controlled and reduced.

Whereas surface transport absorbs power for movement, aircraft also need power for lift. Weight is more critical in a field where it is calculated by the ton and not thousands of tons. Weight distribution is also more critical in the air than on the ground. Many can still remember weighing in their baggage and then being asked to step on the scales themselves to enable the pilot to estimate the maximum fuel load, or even decide if he could take all the passenger luggage on the flight. The major advantage of air travel is speed and consequent saving of time, whether for travel, for freight in emergencies, or in a regular supply situation. The cost accountant can decide in any particular case if this saving is sufficient to warrant and offset the higher freight rates for a regular production schedule.

As aircraft grew, the volume of luggage and freight manhandled onto and off them started to build unacceptable time losses on the ground. Aircraft manufacturers and operators started to look for answers. An early example was the 'Speedpack', developed for aircraft such as the Lockheed Constellation. This was a streamlined belly container which could be preloaded and then secured beneath the fuselage of the aircraft to provide additional freight volume within the lifting capacity of the aircraft. Today we see the end result, a series of containers termed 'unit load devices' (coined by Virgil Brown of Seaboard World Airlines about 1969). They are a range of boxes of various shapes and sizes from small (100 cu ft) to the large ISO 40ft container. Many are based on pallet sizes (mainly 88x125 inches and 88x108 inches) and, subject to the goods being carried, may consist of the base alone, a pallet mounted retaining net, or solid walled igloo.

In many cases the shape of the container will be dictated by aircraft fuselage contours, to avoid the loss of valuable space. Allied to these containers are a range of fork lifts, scissor lifts and other equipment to move them round the airport and into aircraft. These are in some cases similar to those employed for surface-borne containers.

Initially the devices were designed for a specific aircraft, such as Lockheed's Constellations mentioned above. However, the limitations and costs this introduced, which could result in duplication and non-availability due to equipment unsuitability, led to the preparation of standards promulgated by the International Air Transport Association. There were also pressures to move in certain directions from different sections of the industry. Aircraft operators were, and are, keen to promote the use of pallets which, being basic, save weight when compared with containers. Consolidators, the forwarding and parcels agents handling a large volume of small packages, are keen to see greater use of containers, which provide better security and protection for the type of freight passing through their hands.

Until 1970 many of the aircraft were limited when it came to the carriage of ISO size containers, some just managing and many being unable to accommodate them. Typical was the Lockheed Hercules which could just squeeze the 8ftx8ft cross section into its fuselage. But then, in 1970, the

Boeing 747 was introduced into service, and from this a family of aircraft grew with a freight capacity in excess of 100 tons, including freight-only versions able to carry more than a dozen 20ft ISO containers on their main deck, plus smaller unit load devices on the same deck and in the belly holds.

Seaboard World Airlines, at that time the premier cargo carrier, promoted the use of containers and in 1974 introduced its Boeing 747 Containership, fitted with a side cargo door in addition to the normal freighter nose door, and allied the aircraft with its 'Air-Truck Containers', which were built as both 20ft and 40ft units. The main difference between standard ISO containers and the Air-Truck containers was the lack of corner lifting eyes, as the Air-Truck units were not intended for stacking and would be moved on platforms rather than lifted by cranes.

Other aircraft manufacturers followed suit, examples being the Douglas DC-10, Lockheed's Galaxy and L1011 Tri-Star. This fleet of wide-bodied aircraft gave a massive boost to freight capacity and at the same time reduced cost levels, which again aided growth. The economy of scale was allied to more efficient and less-thirsty engines, whilst the fall in world crude oil prices from the 1970s was reflected in carriers' fuel bills. This growth can be illustrated by one airline alone. In 1960 Lufthansa flew 240 tons of freight between Europe and the Pacific region (India, the Far East and Australia). Thirty years on, in 1990, the volume had mushroomed to 170,000 tons.

This is not just an isolated case. The forecast is for continued growth, which will be reflected in the wider employment of unit load devices and containers of various types. The freighter fleet is forecast to grow from just over 1,000 aircraft in 1993 to over 2,200 in 2013. Amongst these the number of large freighters, lifting over 50 tons, is expected to increase from 175 to 770. Cargo lifted, producing 86.9 revenue ton kilometres (RTK) in 1993, is expected, with a 6.5 per cent growth rate, to reach 306.1 RTK, a 250 per cent rise.

David Burrell 1995

Containerisation for air cargo

A few years ago, Lockheed-Georgia unveiled a preliminary design for a radically different type of aircraft that would carry cargo containers in the open, on a 'flatbed' airframe. Lockheed prepared a feasibility study and built a small model of the aircraft, but the proposal never took off, due to the high cost of development.

This points out an interesting contrast in design trends between the air cargo industry and other modes of transportation that use cargo containers. The advent of special marine cargo containers in the 1960's and 1970's resulted in a revolution in ship and port design, and when railroads became involved, their rolling stock was radically affected too.

However, in air cargo, no drastic changes in aircraft design have resulted from the use of cargo containers, nor are any likely to be forthcoming. Instead, air containers have quietly become assimilated into the mainstream of air freight movement. The Air Transport Association estimates that more than 40 per cent of the freight moved by carriers with container capabilities is now containerised.

This is not to imply that an evolution of sorts is not occurring in air containers. Livestock units see frequent changes, the most recent innovation being Flying Tigers' airstable for horses, which can be converted to a standard container. The use of refrigerated air containers for shipping perishables has become widespread, and the development of a new generation of Boeing aircraft necessitated a whole new line of cargo containers, the LD-2.

The introduction of the Boeing 767 produced a significant change in container usage for its customers. This aircraft cannot accommodate the workhorse LD-3 side-by-side in its belly, so the LD-2 – almost identical in shape but slightly narrower – was developed as a replacement. So far, however, the LD-2 has won limited acceptance.

Some airlines also are experimenting with intermodal shipments, which are common today with ocean, rail and motor carriers. However, true intermodal services, using containers compatible with ocean carriers, have never lived up to the potential that many industry observers eagerly predicted during the 1970's. There continues to be a scarcity of shippers who can fully utilise the cube of such containers, and airlines are understandably reluctant to carry the marine 20ft container, which is viewed as wastefully heavy. American Airlines was a pioneer in the development of intermodal shipments, using the 20ft ISO M-2 container, which measures 20ft x 8ft x 8ft. This standard size is used successfully by ocean and rail carriers, and initially there were high hopes for its success with air cargo. American's 20ft box is compatible in size with ocean carriers', but it is lighter than standard marine units. However, although American is a 'prime supporter of that container,' says Jack Byno, director freight services for Dallas-based American, 'we are disappointed that the industry has not put as much emphasis on it as we have. There are tremendous advantages to using it.' Generally, American selects the M-2 for shipments involving all three modes of transportation. A typical shipment is loaded into the container in the Far Fast, shipped to the US West Coast on a containership, put on an air freighter on the West Coast and flown to an inland city, where it is transported by truck to its final destination.

Air Canada is another airline involved in intermodal shipments through its Sea/Air program, operating from the Far East to US and European destinations. Cargo is shipped across the Pacific in marine containers by one of several carriers, docking at the port of Vancouver. There, the cargo is broken down and reloaded into air containers for a flight to the final destination.

Northwest Orient in Minneapolis also includes a 20ft container in its selection; however, it is not used in an intermodal fashion. The 20ft intermodal container 'has fallen out of popularity in our system,' says Don Chadwick, manager of cargo sales. Weight and scarcity of specialised shippers are cited as reasons for its non-use. Northwest's 20ft unit is a special air container used by a computer shipper.

The carrier's Sea/Air program is still in operation, but only as a sort of pricing/incentive policy. The airline aims the program at shippers traditionally moving goods from the Far East by ocean and tries to convert them to air for the inland portion of the trip by using a sea-air tariff.

Perhaps the only radically different concept in the past few years is that embraced by a few firms that specialise in lightweight fibreboard air containers. Julius Kupersmit, president of Container Systems Corp in Springfield Gardens, NY, believes that the traditional air containers used by airlines are too heavy to be efficient. His company has developed a line of fibreboard air containers that are shipper owned. The advantage of lightweight fibreboard units, Kupersmit points out, is that they are more accommodating to the airline's customer.
Containair recently developed the K-box. This goes a step further in the reduction of tare weight, Kupersmit explains, by using slip sheets for handling instead of wooden pallets. This concept provides extra space for cargo that was formerly displaced by pallets, plus considerable weight savings.

In the future, most industry observers feel that air containers will remain vital, although some believe the weight of the container is a drawback in an age of high fuel prices. But airlines seem to be waking up to the fact that the shipper depends on containers for their greater security, protection against weather, and ease of loading.

Jack Byno of American is one of the air container's strong believers. The use of containers is 'more advantageous,' he says, because 'there is ease of movement, there is ease of transfer to connecting complexes and there are advantages if we transfer cargo from airplane to truck.'

Lufthansa is another believer, according to Gunter Tesch, assistant general manager of cargo in New York. 'We utilise containers as much as we can. Some containers are more advantageous to clients than others – it depends on interchangeability and where the container is headed,' he says. Containers are here to stay for air cargo, Tesch believes. 'People like the door-to-door concept. Many shippers have found that it's an advantageous way to ship air cargo... safe and easy transportation.'

Containers are an integral part of the operations of Flying Tigers, the world's largest all-cargo airline, says Larry Berry, director of ULD control: 'Virtually every pound of freight that (Tigers) moves, does so in a container of some sort,' he says. In the container program, 'what we attempt to do is maximise the cube of the aircraft and minimise the tare weight of the container in question, thereby producing the greatest revenue opportunities for the aircraft,' Berry explains.

Although KLM Royal Dutch Airlines prefers pallets to structural containers, according to Don Palmer, regional sales manager in Atlanta, the carrier has found containers to have an advantage when security is important and for the shipment of perishables, for which KLM uses special Cooltainers. Palmers add that some forwarders favour the container because it adapts to their particular system in-house and because it is easier to stuff a container than to build a pallet. Several industry executives foresee the next change in air containers resulting from the stepped-up use of narrow-body aircraft, which cannot accommodate structural containers. American's Byno describes the trend: 'Before deregulation, many US carriers

emphasised point-to-point, or transcontinental traffic. Since deregulation, however, most US airlines have complemented transcon operations with complex, or hub, operations. Traffic is fed from smaller aircraft to larger ones, yet many of the smaller planes cannot carry structural containers. This obviously has prohibited airlines from containerising cargo on certain routes.

For the hub system to remain efficient, Byno anticipates that a modular concept will emerge, including greater use of the E-type container, which is constructed of cardboard and is about the size of a footlocker. This type of container is already available and, if utilised to a greater degree, may gain air containerisation an even greater degree of popularity.

Ron Clark

Air Cargo World (March 1984)

Why do airlines still oppose an intermodal container system?

To the editor "Transport 2000"

What is wrong with those senior executives in the airline, airframe manufacturing, and air freight forwarding industries who continue to produce well written and informative articles on air cargo transportation as it is today rather than on what it should be tomorrow? By this I mean those in-depth and profound discussions that still concern all air freight for movement between airports either on pallets, in LD containers, or in unit load devices.

There are serious problems in the air cargo industry in addition to deregulation and the recession. These problems should be identified and addressed within the next 24 months if their negative consequences are to be avoided in the years to follow. Unfortunately, all but the first of the following four specific problem areas seem to have escaped the attention of the aforementioned industry leaders. The first of the four is where improvement is at least attempted, and, ironically, is where it is least needed as it promises to lay the foundations for future ills. These four problem areas are:

Airport-to-airport belly cargo capacity growth should not be encouraged when there are alternative means to provide the same service for air freight shipments over the same route. The airport-to-airport system must of course be used for passenger luggage, mail, express, and freight forwarder shipments that cannot otherwise be handled.

The relatively slow adaptation and marketing of the M-1 and M-2 intermodal container systems as an origin-to-destination (shipper loaded/consignee devanned) through-container. This is where the air cargo industry future lies, even though it is not obvious at this time.

The little recognised but historically proven fact that organised labour is attracted to opportunities that indicate growing manpower requirements. Should airline freight terminals require more labour to handle increasing airport-to-airport traffic, employees will eventually sense they are moving into a power position, and by one means or another, will increase their demands. Admittedly, this is not a current problem and it will be important that it is kept from becoming one.

Most difficult to recognise is the fact that nearly all categories of air cargo will increase in volume, value, and economic importance. American industry is shifting, rather rapidly, into an array of high technology industries that even now is creating a new transportation demand that can only successfully move by air.

Federal Express, followed by Emery Air and Purolator, developed the first innovative transport systems for this new industrialisation. Once the recession has run its course we will see the demand for similar accommodation for larger shipments of diversified products. It will still be air freight – but it will increasingly be the production of a far more dynamic economy where time, inventory, and market responsiveness will be paramount considerations.

Before anyone hardly realises it, we will be at the point where a disruption of air cargo and courier services will have a decidedly adverse effect on the nation's economy. Air cargo terminals must never be permitted to develop to the point where their non availability could impact to that extent.

In the flow of air commerce, safety lies in routing diversification. And diversification for air freight simply means movement away from – or at least holding to absolute minimum – air line freight terminal operations. The alternative is maximum development of shipper-loaded/consignee-devanned intermodal container usage. This is not the proverbial 'tall order' that so many take for granted. Rather, it is the redirection of proven capabilities, materials, and facilities toward the air/surface intermodal container systems objective.

What should industry leaders concentrate on to bring things to the point where air cargo's future will be assured? The list is neither long nor complicated, and among the three executive groupings – airline, airframe, and forwarder – there will be ample opportunities for all to formulate programs and systems that will accomplish what must be done.

First:

Stop complaining about the tare weight of air cargo containers and unit load devices. Tare weight will always be with us in one form or another, so we might as well find ways to make as much of it as possible work for us in intermodal trade-offs.

Second:

Discontinue any further research and development of unit load devices, pallets, and contoured air cargo containers, either individually or on a systems approach. It is no longer worth the effort and cost. This also applies to the fibreboard container if it is intended for use as an external conveyance. The present state of the art is more than sufficient for the market it now serves, or will likely ever serve.

Third:

Retire the pallet and unit load device mentality and direct all future efforts to the design and manufacturing of ISO air/surface intermodal containers and systems. The 20ft M-2 is not the only air/surface intermodal box, it only happens to be the first. The ISO standards include a 10ft length, and a 6ft 8inch length. Two ten-footers, or three 6ft 8inch lengths can be coupled together into 20ft units for economy and ease of handling.

The air container manufacturing community should take upon itself the task of reducing the tare weight of the M-2 container to an even 2,000 pounds, which would permit a payload of 23,000 pounds. Also to be kept in mind is that doors need not always be at the end of an intermodal container, they can also be located on the sides.

Fourth:

Investigate the possibility of attracting a three or four-foot high side wall in the loft and 20ft pallet, with a drop gate fitted on one end. It should be much easier and quicker to build up and secure cartons, packages and crates on a side wall pallet than on the flat pallets presently in use. This rigid vertical base structure should result in a far more stable and secure freight load, as well as less need for securing or strapping devices.

Fifth:

By far the most important is the need for a narrow body main deck aircraft to serve as a feeder for all the 747 all-cargo carriers on trunk routes, or for those 1,000-mile or so distances where cargo mix, volume, and motor carrier operations can all be brought together in a complete package. In view of the increasing importance of air freight, and the irreversible trend to intermodal air container units, something will have to be done in this area sooner or later. When we consider that only about 20 per cent of the world's airports handle wide-body aircraft, the need for a main deck narrow-body cargo plane cannot be ignored much longer if the air freight industry is to avoid stagnation.

Based on general observation, it would appear that such a plane should roughly resemble the C-130, but with relatively flat fuselage surfaces rather than the more or less tubular shape of most conventional jet planes. This much-needed plane need not be the fastest in the skies or necessarily jet powered – turbo prop might do as well.

Details notwithstanding, there will shortly be a place for this medium size, medium range, all cargo aircraft, configured to accommodate a minimum of four 20ft modules, 8ft high by 8ft wide, ISO intermodal air/surface containers.

This discussion will not end in the usual flurry of grandiose projections, hinting at all the wonders yet to come. Instead, let us look back to the ocean carrier cargo liner services of some 18 or so years ago, when that industry was on the threshold of full-scale intermodal containerisation – about where the air cargo industry will be in 1984.

Many New York-based steamship lines either outright rejected or postponed the transition to containerisation for as long as possible.

It is risky to jump into new technology before it is proven, but it is foolhardy to wait beyond a certain point before getting in step with the times. Even under the best of conditions – which the air cargo industry is certainly not enjoying at this time – change is difficult, and usually resisted. But we must face up to the obvious and realise that, as a service, airport-toairport has nearly reached its limits. The cost of future airport-to-airport cargo growth will be more than most air carriers will be able to absorb, and at the same time remain in the cargo business. These are the critical areas that should receive executive attention when the ills of the industry, and what to do about them, becomes the topic of the moment, or the meeting, of the day.

At this time, only American Airlines and CTI-Container Transport International have jointly created an air/surface intermodal container service and system capable of meeting the needs of tomorrow. True, there was risk, as there is with any new concept when it is turned into commercial enterprise, but these two companies have proved the viability of the concept. Now it is up to the rest of the industry to not only get in step with the times but get ready for tomorrow.

Dean James

Transport 2000 (1983)

Editor's note: How little has changed in this case! (2006)





ON THE WATERFRONT

Containerisation in Hong Kong

Hong Kong, as an export-oriented economy, had to respond to developments in cargo unitisation which occurred in the developed world in the 1960s. Overall, the speed with which containerisation was adopted, and adjustments made, was surprising.

The initiatives for change came from commercial operators, who were able to persuade a very reluctant administration to embrace this technology change and all that came with it. Interim measures were initially adopted but long-term developments were more successful. The port layout changed, cargo handling activities were decentralised and commercial organisations, both large and small, were forced to adapt to the requirements of this new technology.

Hong Kong in the 1960s was a fairly typical developing country with low labour costs and a rather poor inland transport infrastructure. Cargo handling was undertaken over the ship's side into lighters or at finger piers and wharves and, although inexpensive, it did take time. Containerisation had little to offer Hong Kong, but as a cargo exporter, the needs of the destination ports in developed countries, and the shipping lines which carried the cargo, had to be considered.

The loading and unloading of general cargo was a slow, labour-intensive process which in itself was expensive but also resulted in large costs for the shipowner and a reduced revenue-earning time for his ship. Malcom McLean is credited with the first movement of trailer loads of cargo on his Sea-Land ships in 1956. New, specially designed, container terminals were needed to handle these ships, which were rapidly developing in size, and any terminal plans had to accommodate these changes.

In July 1966 the Hong Kong Government finally responded to pressures from the commercial sectors and its own Marine Department and appointed a Container Committee. The committee formed two working subcommittees, one to consider the design criteria for a new terminal and the other to examine benefits and problems for manufacturers, importers and exporters relating to containerisation of cargoes.

The 'terminal' sub-committee considered container demand forecasts, possible sites and the berth design features. The 'cargo' sub-committee examined procedures and legislation related to cargo handling. The same committee also examined existing terminals in relation to container handling, container ship developments and terminal developments in other ports.

The Container Committee concluded, in December 1966, that fully cellular container ships would be operating in the Pacific area by 1970 and, unless there were terminals to receive them, these ships might bypass Hong Kong. Furthermore, Hong Kong industry would benefit from containerisation and, as imports and exports grew, the container terminal site chosen must be able to expand.

In front of the Kwai Chung reclamation was a 38 ha area of seabed which was suitable for a container terminal. The Kwai Chung site was chosen by the committee after examining others on Hong Kong Island, Kowloon and Stonecutters Island. Kwai Chung had a deepwater channel leading to the site, it was adjacent to industrial areas, roads were being planned, and an adequate area could be reclaimed and made available by the early 1970s.

The Container Committee's report was forwarded to the Governor, Sir David Trench, in January, but did not reach the Legislative Council until June 1967. An attached memorandum suggested that the Kwai Chung site be reserved but no further action should occur 'until firm plans for container ships or otherwise are disclosed by the majority of shipowners using Hong Kong...'The Container Committee reconvened, and its second report, issued in October 1967, reiterated the first, urging action without further delay.

While the government prevaricated, three port operators modified and adapted their existing facilities to handle unitised cargo, initially as pallets and then as containers. In 1967 the Hong Kong and Kowloon Wharf and Godown Company (HKKWGC) produced detailed plans for the progressive development of a three-berth container terminal on their premises at Tsim Sha Tsui. In 1969 North Point Wharves announced proposals to develop a berth for container ships at North Point on Hong Kong Island, and back-up facilities at Ngau Tau Kok on Kowloon. The Hong Kong and Whampoa Dock Company also began redeveloping part of their shipyard at Hung Hom as a container terminal. Government, meanwhile, was doing little, as increasing numbers of containers were unloaded in the port. A detailed engineering report was requested, in order to cost the proposals for Kwai Chung and their feasibility. Published in May 1969, the Engineering Report on the Proposed Container Terminal at Kwai Chung recommended an immediate start on the first phase of one berth for two 850ft long vessels in 35ft of water. The earliest estimated time of completion was two and a half years. Government called for tenders in April 1970.

Meanwhile, the first A-frame gantry crane came into operation at a container terminal in May 1971 on No 5 Pier of the HKKWGC premises at Tsim Sha Tsui. In 1972 a total of 272 vessels were handled at the terminal, with a throughput of 132,000 TEU. The North Point and Hung Hom terminals also built up their activities and were each considered able to handle about 40,000 TEU.

In September 1972, the container ship Tokyo Bay arrived along-side Berth No 1 of the Kwai Chung Terminal and unloaded 200 containers at the barely completed wharf. The successful bidders for the first three berths at Kwai Chung were Modern Terminals Ltd (Berth 1), the Kowloon Container Warehouses (Berth 2) and Sea-Land of the United States (Berth 3). Reclamation of all three berths was completed by the companies themselves, with Berth 1 operational within two and a half years. In 1973 there were 105 shipping lines operating scheduled services to Hong Kong, of which 50 per cent were using either fully or semi-containerised vessels.

These shipping lines progressively moved their operations to the new berths at Kwai Chung and, by December 1977, the interim facilities at Tsim Sha Tsui and North Point were closed down. Modern Terminals Ltd (MTL) was opened by the European members of the Trio Consortium, namely Overseas Containers Ltd., Ben Line and Hapag-Lloyd, together with Hong Kong companies including Swire, Jebsen, Kadoorie and the Hong Kong and Shanghai Bank.

The Hong Kong and Kowloon Wharf and Godown Company Ltd., together with Maersk Line jointly developed Kwai Chung Berth No.5 with MTL in 1976, enabling the Hong Kong and Kowloon Wharf and Godown Company Ltd to close its interim terminal facilities at Tsim Sha Tsui. The Hong Kong and Whampoa Dockyard Co Ltd (HWD), which owned the interim berth at Hung Hom, formed Hong Kong International Terminals (HIT) in 1974. In 1976 this built Kwai Chung No 4 berth and also bought berth No 2 (when the Kowloon Container Warehouses Co went bankrupt). HIT was initially set up to manage container terminal operations at Hung Hom and North Point. It then took over Kwai Chung Terminal 4 when it was completed in 1976. In 1977 HIT became part of Hutchison Whampoa Ltd, following the merger of HWD and Hutchison International. Prior to the merger Hutchison International sold off its 11 per cent share in MTL, a direct competitor of HIT.

Container throughput at the Kwai Chung Container Port progressively increased and by 1984 Hong Kong (2.11 million TEU) was in third position in the world container league, with Rotterdam (2.55 million TEU) and New York (2.26 million TEU) in first and second place. More land was needed to handle increasing numbers of containers and 25.5 ha was reclaimed by filling in the Kwai Chung Creek, at the south western point of the terminal area. The land was progressively handed over to the operators from mid-1986.

HIT had, in the meantime, reached agreement with Government to construct Terminal 6. Part of the deal was to relinquish Terminal 2 to MTL. Construction of the new 29 ha three-berth terminal began in October 1986 and was completed almost three years later in September 1989. Terminal 2, meanwhile, had been handed over to MTL in 1988, reopening early in 1989.

In 1987 the Hong Kong Government implemented a Port and Airport Development Strategy Study (PADS), to project port needs into the next century to the year 2011. In 1989 the various proposals outlined in the study were approved and announced by the Governor, Sir David Wilson.

The port-related PADS proposals called for port developments to be progressively phased in, first around the Kwai Chung area and then, later, on the south coast of the northern end of Lantau Island. New roads and bridges would be built to provide access to the northern part of Lantau, for major port and urban developments.

At Kwai Chung, Container Terminal 8 was to be built on Stonecutters Island. Terminal 9 would be built on the south east tip of Tsing Yi Island. On Lantau Island, a peninsula would be progressively developed into the Western Harbour, from Tsing Chau Tsai, for container terminals. In 1991, after some initial difficulties with China, agreement was reached on these proposals.

In the same year, Terminal 8 was awarded to a consortium of MTL and HIT, who would each operate two berths, and share the 58 ha site on Stonecutters Island, offshore from Kwai Chung. A land bridge would be formed as part of the reclamation project, to join Stonecutters Island to the Kwai Chung Container Port.

In November 1992, Terminal 9 was awarded jointly to a consortium of MTL-HIT and the Tsing Yi consortium. The Tsing Yi consortium included Jardine Pacific, Sea-Land Orient Terminals/Sea-Land Service Inc, New World Development, Sinotrans and Hanjin. MTL-HIT and the Tsing Yi consortium would each operate two berths, although the 60 ha site would be jointly developed.

The Lantau Port Peninsula and Western Harbour Development Studies were commissioned in 1991 to assess the feasibility of the PADS proposals for Lantau Island and were completed in 1993. The final report outlines a phased development of 17 container berths with a potential to develop a total of 24.

The first container berth of Phase I (Terminal 10) is planned to commence operations as the new roads and bridges linking Lantau Island to the Kowloon Peninsula become available (the Lantau Fixed Crossing), which is expected to be mid-1997. Four development phases will end in 2000, 2003, 2007 and 2011 respectively. Upon completion the Lantau Port will be as large, or even larger, than the fully developed Kwai Chung Container Port, since it has the potential for 24 berths over Kwai Chung's potential 22.

Asia Terminals Ltd completed the extension of its facility in 1992, adding an additional 554,888 square metres of storage area. HIDC opened their facility on Terminal 4 in 1993 which provided 377,250 square metres of storage area plus a container freight station of almost 33,000 square metres.

In January 1994, Cosco-HIT, a joint venture between China Ocean Shipping (Group) Company and Hong Kong International Terminals Ltd, began cargo handling operations at Terminal 8. In July, both berths were in operation at Terminal 8 East, and a new terminal operator was in action at Kwai Chung. Terminal 9, meanwhile, has been, and remains, the subject of much controversy and political discussion. Thus for the first time since 1972 there is not a single container terminal being built in Hong Kong.

Yet, as 1994 draws to a close, Hong Kong remains the world's largest container port in terms of throughput, having handled 9.2 million TEU in 1993 and is on target for 10 million TEU in 1994.

David Taylor 1994

Editor's note: By 2005 Hong Kong's throughput had more than doubled in a little over ten years to 22.6 million TEU (2006)

Singapore looks forward

1994 marks the year when the port of Singapore exceeded the 10 million TEU mark for the first year in its 22-year history of container handling. Apart from Hong Kong, Singapore is the only port in the world to enjoy this distinction.

The decision to construct the first container terminal, in the early 1970s, when the economic situation was quite uncertain, was an act of faith and foresight on the part of the port's early stewards. Since Japan was the only country in Asia to have container ports in 1969, the millions of dollars spent on the infrastructure to anticipate the coming of container vessels was a calculated risk.

When Tanjong Pagar Terminal opened with three container berths in 1972, it marked an important milestone in the path towards a truly global port. It has maintained double-digit growth ever since then. The port's gradual increase of over 100,000 TEUs annually in the 1970s accelerated dramatically in the 1980s. It took 14 years, from 1972 to 1985, to handle the first 10 million TEUs, four years for the next 10 million TEUs, and less than two years to handle the third 10 million containers. Now, the port handles 10 million TEUs in one year with its three container terminals: Tanjong Pagar, Keppel and Brani.

The strong economic growth in South East Asia and the emerging markets in China, Australia and South Asia have fuelled the robust growth of the port. Its ASEAN neighbours accounted for about 35 per cent of its container throughput in 1994. In the same year, PSA (Port of Singapore Authority) also saw 11 new container shipping services. To date, there are more than 320 services by 133 container lines, over 30 per cent of which are feeder services.

Given that the economic growth in the region will remain buoyant, with Malaysia and Thailand set to join the ranks of the NIEs, and increased shipping links with Indo-China, the Middle East and Australia, the PSA is confident of positive shipping and container growth in the future. For the next few years it expects double-digit growth at 13-16 per cent in its container traffic.

On any one day, the three container terminals handle about 42 container ships and almost 30,000 TEUs, with its 20 main berths and nine feeder berths. A mother vessel loads and discharges an average of 1,400 TEUs and is serviced by about 30 to 40 feeder vessels. The thousands of container movements needed, in the yard and on board ship, are executed in just 15 to 16 hours with the help of 98 quay cranes and 328 yard cranes. This process goes on non-stop three shifts a day, 365 days a year, rain or shine. In land-scarce Singapore, the timely expansion of port facilities is crucial. One of the PSA's corporate policies is to develop its infrastructure ahead of demand and upgrade its services to provide better facilities and adequate capacity to attract throughput in this region and beyond. Hence, upgrading works are being carried out at Tanjong Pagar and Keppel Terminal. By 1996, the three container terminals will be equipped with 20 main berths and 11 feeder berths to handle up to 16 million TEU. But even before the upgrading works are completed, plans for a new container terminal are already underway.

To be situated at the Pasir Panjang/West Coast area, this new terminal will be constructed in several phases over the next few decades. When fully completed, it will increase the PSA's handling capacity to 36 million TEUs. Development of this new terminal commenced in September 1993. Phase 1, costing S\$2.3 (US\$1.6) billion, involves reclamation of 129 hectares of land off the West Coast Park area. The first five berths will be in operation in 1998. Reclamation of the second phase will start in 1995 and the first two berths are expected to be ready for operations in 2001. Together, these two phases will have a capacity of over 18 million TEUs. This new container terminal will bring the port well into the 21st century.

Information technology (IT) has played a supportive role in the PSA's intense port operations. The innovative use of IT has been the key in helping PSA meet the challenges of handling an increasing cargo volume under constraints of land area, sea space and manpower. Presently, the PSA employs over 290 computer applications in almost every aspect of its administration, planning, training and operations.

For its container handling operations, it developed the Computer Integrated Terminal Operations System (CITOS), which comprises various expert systems for planning berth allocation and the stacking of containers in the ship and container yard. CITOS also includes a sophisticated system of wireless data exchange and a container recognition system, which serves to track containers in the port in real time mode. CITOS modules are constantly being enhanced to achieve greater operational efficiency.

Though the port is enjoying good growth in its shipping and cargo traffic, the PSA will not rest on its laurels. It will remain focused on its mission of making Singapore an excellent global maritime hub.

Port of Singapore Authority 1995

Editor's note: Just like its rival to the North, Singapore experienced phenomenal growth over the ten year period, its 2005 throughput total reaching 23.2 million TEU. (2006)

The ones that got away

It is fair to point out that current and future design innovations for landside container handling are likely to build on long-established rules. Where terminal operators can select from a variety of options, the number of efficient techniques or combination of techniques is limited.

For the enthusiast, such undoubted clinical good sense will not elicit the misty-eyed nostalgia reserved for those container handling concepts developed before the rules were made, when the container handling industry had to do its growing up in public. Nor can a refined version of a currently transcendent new machine excite the imagination in the same way as one launched with a view to breaking the rules.

In this latter context, it is perhaps fitting to begin with a design which defied its critics and went on to break the mould. After all, today's novelty can often become tomorrow's 'big idea.'

It now seems hard to believe, for example, that when Belotti first launched the B75 reach stacker back in 1975, some argued that its application to the container handling sector would be strictly limited. Whilst the ability to handle boxes in the second row was portrayed as a clear advantage over front lifting trucks, some argued (not least forklift truck manufacturers) that the machine was slow and unwieldy and that second row handling would seldom be used.

Belotti quickly won strong domestic sales and, through the late 1970s and early 1980s, the reach stacker's attributes established it as a unique product in Europe. As the machine began to take market share from lift truck makers, new manufacturers entered the fray with variants on Belotti's original idea. Nevertheless, the dwindling band of front lift truck makers not offering a reach stacker clung to their resistance to the concept, arguing that, sure, the reach stacker was appropriate for the intermodal sector, but it was only a niche.

The rest, as they say, is history. By the early 1990s, reach stackers were taking a sizeable market share in ports as well as at railheads, in Europe, Asia, Australasia, Africa, and South America/the Caribbean. And in 1994, the machine finally took off in the US. In 1995, three of the manufacturers formerly most resistant to the concept, namely Hyster, Caterpillar and Lansing Linde, finally took steps to plug the gap in their range of container handling products with their own versions of the reach stacker.

Like the reach stacker, the mobile crane, the gantry crane, the front lift

truck and the straddle carrier all now appear equally established as the mainstays of the container handling industry, with each equipment type selling regular quantities around the world. But hold on: one of the aforementioned machines has enjoyed a far more chequered history than its counterparts; namely the straddle carrier.

The straddle carrier has been applied to port handling duties since containerisation became a commercial reality, with Clark establishing an early lead. However, by the end of the 1970s, straddle sales were undoubtedly dwindling, down from around 150 units per year to around 110 per year, as the yard gantry's superior space utilisation began to overtake the straddle carrier's flexibility as the important factor in container handling, and also because the first generation of straddle carriers had tended to be hazardous in operation (leaking hydraulic fluid all over the terminal surface, for example, particularly at increased temperature). They were noisy, hard to maintain, and were plain unreliable. The Middle East proved something of a graveyard for first generation straddle carrier hydraulics.

Happily, with the arrival of second generation machines from Nellen Kranbouw (to become Nelcon), Valmet, Peiner, Mitsubishi, TCM, Raygo Warner and Drott, the dawn of the 1980s saw the machine type make something of a recovery. Reports of the straddle carrier's demise later proved to be gross exaggerations and today it continues to sell around 140 150 units per year around the world. However, the straddle carrier's difficult years certainly shook out a specialised industry. Most notably (alongside the absorption of the Clark and Rubery Owen brands by Ferranti), the downturn put paid to some of the more imaginative variants.

Gone, for example, is the Belotti machine designed to act as both straddle carrier and sideloader, with the capability of handling containers outside its wheelbase. Nor will we ever know what might have been in store for the container-yard paving sector, had Italian company Gentili Brighi managed to sell its rough terrain straddle carrier (featuring a special 'isotatic' steel frame) in any numbers in the early 1980s.

And the straddle carrier's strategic potential was never fully explored when US-based manufacturer Renner Smith entered Chapter 11 in 1988 with an order for 55 'rapid deployment' straddle carriers for the US Air Force outstanding. The machines were designed to be transported by air in kit form for quick assembly at the point of use.

No matter how unlikely these ideas now seem, they are really only

variations on a concept which has long been accepted in the container handling sector. However, for every 'big idea' that makes the grade, there are countless others that flop. Many a good technical innovation can appear silly with the benefit of hindsight, when it was really only too expensive. Some ideas, of course, are just straightforwardly bizarre. In any history of 'what might have been' in the container handling industry, pride of place must surely go to the Amphitruck AT400, the unique amphibious cargo/container carrying vehicle aimed primarily at markets in developing countries.

The machine was presented to the market by (West) German company Maschinenfabrik Buckau R Wolf AG. Today, some may question whether (or indeed why) such an idea ever got off the drawing board at all. However, reliable witnesses claim that during the second week of September 1980, the wind-swept beaches outside Kid provided the setting for trials of two AT400s, which were to be seen lumbering through the waves and then dragging themselves ashore and up the beach. Once ashore, the machines were to be seen performing forward, reverse and even sideways

The AT400 was effectively a barge on wheels, built for light coasting duties, with a top speed in the water of 6.1 knots and a respectable top speed on land of 40kmph. The idea was that an AT400 would shuttle back and forth between the shore and freighters moored offshore in cases where port handling facilities were limited. Typically, under test, the craft would be loaded using ship's own gear with a 20ft box, or with up to 20 tonnes of other cargo. Having come ashore and travelled to its desired destination, a landside crane would be used to unload the Amphitruck. At the time of the trials, the craft's inventors talked expansively of Amphitruck being used in other applications, beyond the lighter/truck role. It was envisaged that AT400 could be used by the rescue/emergency services, or even by the military. In the event, the machine proved to be equally inappropriate for all these uses and it was subsequently shelved. Beyond the bizarre nature of the concept, and the fact that developing countries were always going to be more likely to favour building up their own port handling facilities anyway, one reason for AT400's flop may lie in the fact that a single Amphitruck cost \$450,000 in 1980.

If the story of the AT400 proves anything, it is that the more unusual approaches to container handling were by no means restricted to the early years of containerisation. This point is further demonstrated by an even more recent proposal for container handling which flopped, put forward by Spanish Seveco in 1987.

It is perhaps a little unfair to link Seveco's Cald-400 machine with the truly outlandish amphibious handler, given that the Seveco machine was an interesting attempt to combine the benefits of the lift truck, reach stacker, the mobile crane and the straddle carrier. However, the two machines are comparable in terms of their unpopularity.

The four wheeled Cald-400 consisted of two parallel frame sections, each with an extending arm and each joined by several beams. Low down on one side was mounted a driver's cabin. From the side, the machine roughly resembled a twin boom reach stacker; from the front it looked almost strikingly like a straddle carrier.

The 50-tonne lift capacity Cald-400 itself weighed-in at 50 tonnes. It was actually described by inventor Captain B Caldentey at the time as fundamentally a type of straddle carrier, modified to bring in the maneuverability, turning capability and travel speed of a fork lift truck, and the second row handling of the reach stacker. A special connection mechanism facilitated rotation of a container, according to whether the reach stacker or straddle carrier mode was being employed. An even larger Cald-500 machine was developed, capable of one over three high stacking in the straddle carrier mode.

As a reach stacker, the machine was capable of five high stacking in the first row, could approach the stack at an acute angle and could even reach into the third row. With a total chassis length of just 6.59m, the Cald-400 was capable of manoeuvring down aisles to 11m width when carrying a 40ft unit, had a turning circle of just 8.3m and was capable of rotating boxes through 360 degrees.

Terminal operators may never know whether the flexibility of the Cald-400 would have offered significant efficiency gains. Whether its demise can be traced to its cost, to the fact that the concept of a new machine type had arrived too late, to suggestions that the machine lacked stability, or simply the conservatism of terminal operators worldwide, is hard to say. Despite trials by Renfe and at the port of Barcelona, the idea of developing an allround container yard handler has remained only an idea.

Despite these later 'innovations', the dawn of commercial container operations unsurprisingly proved a particularly experimental period for handling concepts. It was pretty clear from the outset that a 35ft long box laden with cargo (the first Sea-Land 'containers' to cross the Atlantic, in 1966, were really 35ft length trailers without wheels) would be best handled through an attachment connecting to each corner; hence the inclusion of the corner casting. However, it was not immediately clear what the most efficient way to make use of this would be.

The first few years of commercial container handling, then, saw the development of a number of machines which have since gone the way of all flesh. In passing, it might be noted that the concept of a combined top and bottom lift straddle carrier has by no means evolved only in recent years. Belfast-based Short Bros & Harland, for example, came up with a rudimentary version of such a machine back in 1967. Although the concept relied on fixed length spreaders, and the machine flopped, the 'Shorland 60' demonstrates that there may indeed be nothing new under the sun.

Among the larger pieces of handling equipment, one fondly remembered beast no longer to be seen in operation is the container handling sideloader. Although smaller sideloaders are still widely used for timber and long-load handling duties, and have even enjoyed something of a renaissance in recent months, the type of giant model once offered for box handling is now no longer deemed cost-effective.

Lancer Boss pushed the box handling sideloader particularly aggressively between 1970 and 1983. A container was lifted by the sideloader along its side, as the name suggests, using a top lift spreader, and placed on the machine's platform for on-carriage. The front-mounted cabin, unhindered by a container being carried in advance of the machine (as in the case with the FLT), meant that visibility was enhanced. Meanwhile, with the container resting on the machine's platform, the sideloader was capable of travelling around a container yard at comparatively high speeds. Carrying containers in this way can also be seen to be safer than suspending them from twistlocks. Boss was by no means alone in building these giant versions of the sideloader: similar machines were offered by BP Battioni e Pagani, Fantuzzi, Fiat Carrelli, Lansing Henley, Steadman Containers and GKN Sankey.

At the smaller end of the market, containerisation has seen a proliferation of designs for low-cost machines intended to handle just a few containers where other equipment is not available. However, although many manufacturers and designers have 'come and gone' over the years offering machines aimed at handling containers in small numbers, certain overall concepts have remained remarkably constant, indicating that the specific requirements have not, in themselves, changed.

Therefore, what might be considered 'silly lifters' to the uninitiated are really machines designed with specific container handling functions in mind. Thus machines like the self-loading semi-trailer (often marketed, rather confusingly, as a sideloader) and U-frame trailer designs, continue to serve a purpose where terminal or transport operators cannot justify expenditure on larger equipment.

A low-cost container lifter was introduced by R B Holdings Pty Ltd of New Guinea in 1975, for example, designed to handle occasional containers on unstrengthened surfaces. It consisted of a basic U-frame chassis with two sliding ramps at each end, each having an alloy chain fitted to a twistlock. The idea was that a small 3.5 tonnes lift capacity FLT could be used as the means of lifting one end of a container to engage the container lifter's opposite-end chains. Container and lifter together could then be moved around on the lifter's mid-point wheels, in the same way as a single-axle trailer. This notion is still current in various guises.

The U-frame concept also provided the basis for more sophisticated hydraulic lifters like the 'Dynalift', from Swedish company L B Teknik, and a similar machine from Bollnas, both available in 1976.

Again, in 1977 the UK-based Modular Distribution Systems introduced a design based on diesel or electro-hydraulic powered lift frames or leg posts which could be forklifted into the container corner castings. Using direct compression, the container was lifted from the ground to trailer height using the free standing transfer frames. The operator controlled lifting and lowering via a cable.

One of the effects of hindsight, of course, is that the worst kind of dimwit can often claim expertise. One thing's for sure, though, the wackier the concept for container handling, the more fondly it is now cherished.

Hugh O'Mahony 1995

What kind of phoenix is Felixstowe?

The transformation of the port of Felixstowe has by now become something of a legend in dock and shipping circles, even among those who claim that its success is based largely on certain privileges denied to other ports. At any rate, few will deny that the progress achieved there over the past ten years has been quite phenomenal.

The phrase 'economic miracle' springs almost too glibly to mind, but the story of Felixstowe does strongly resemble that of ports in western Europe which have risen again from the rubble of war. In the case of Felixstowe, however, the problem was not the destruction of war but man's neglect. In 1951, when its docks were taken over by the Felixstowe Dock and Railway Company, the place was little better than a shambles; the jetties were derelict; sheds, roads and railway track were largely unusable, and the harbour was so silted up that the entrance practically dried out at low tide. There was little or no trade except for barge loads of wheat supplying a local flour mill.

Bringing the port back to life was a slow and costly task, especially at the beginning. 'Among other problems' stated Ian C Trelawny, director and general manager, 'there was that of putting a virtually unknown port on the map, though to some extent we were helped by the fact that a large number of shippers were dissatisfied with the delays and high handling costs at major ports. Anyhow, our first customer was the General Steam Navigation Company, which used Felixstowe for its NAAFI traffic to the Rhine as far as Krefeld. Next came three Swedish shipping lines, two of which said they would maintain a service, come what may, and gradually trade built up from there as our facilities became known.'

Figures of cargo handled emphasise the extent to which trade has built up. In 1957, Felixstowe handled only 81,584 tons of cargo, but by 1960 the annual figure had risen to 247,879 tons. The 1966 total of 825,773 tons jumped by 50 per cent to 1,242,678 tons in 1967, and last year it rose by 22 per cent to 1,510,929 tons. At the present rate of increase, the port should be handling two million tons of mixed cargo by 1970.

Figures do not, however, explain why Felixstowe has risen like a phoenix from the commercial ashes. According to Trelawny, the basic reason lies in the fact that from the very start every aspect of the port's activities has been treated strictly as a commercial operation.

'Every section of the port must be economically viable. We are not a cheap port either, but one which gives a first-class service. Virtually every ship which calls here is on a one-day turn-round, and we can handle roll-on/roll-off vessels in six hours', he said. Trelawny, then, sees the present strength of Felixstowe as a triumph of enlightened private enterprise. He pointed out that the management went out and sold the port of Felixstowe, conducting research into cargo patterns, advertising to specific trades such as cars, plastics and timber and putting in a lot of leg work at home and abroad trying to interest potential customers.

'All this was quite unusual for a port. What's more we were spending our own money', he said. This is something of which the company is extremely

proud. Of the $\pounds 6$ million spent to date on developing the port, some $\pounds 4$ million has been financed from earnings, the remaining $\pounds 2$ million having been raised by a Ministry of Transport loan and a debenture issue. 'Our policy has been to plough back all profits into the business, but since 1962 we have been paying a dividend of five per cent on the debentures', Trelawny added.

As a first step in Felixstowe's transformation, the derelict piers were replaced by new concrete structures, the dock was dredged to permit vessels of up to 18-foot draught to enter and lie afloat at low water, the dock railway was made serviceable once more, new sheds, roads and services were provided, warehouses repaired and new ones built. Later developments included the construction of a tank farm on land adjoining the dock basin and of an oil terminal which provides 33 ft of water at low tide and can handle tankers of up to 25,000 tons; facilities here include the handling of liquefied propane with refrigerated tank storage.

Then, early in 1965, the company added a combined ferry and container terminal, which includes a vehicle marshalling area built on reclaimed land, providing a paved and drained area of more than six acres.

However, the most ambitious development at Felixstowe so far was the opening in 1967 of a ferry terminal and a trans-Atlantic container terminal built on a further 13 acres of reclaimed sea bed. Here, deep-sea vessels berth in at least 33 ft of water alongside the quay, 1,330 ft in length. Serving this terminal are two 30-ton Paceco-Vickers Portainer cranes, the first to be used in this country. Another feature here is a six-storey office block (Trelawny House) accommodating clerical staff, company tenants and the Customs.

In 1968, a second roll-on/roll-off berth was completed; further warehouses and transit sheds were built, providing a 40 per cent increase in storage capacity; a locomotive for shunting Freightliner trains was brought into service; and the channel into Harwich harbour was dredged to give 24 ft at low water.

Of the $\pounds 6$ million invested in these and other facilities, about half went on the construction of the oil jetty and the container and ferry terminals, while the other half was spent on warehouses, offices, cargo handling equipment and the lease of land. As a result, Felixstowe today looks what it is – a modern, busy, yet tidy port which gives the impression of having been planned to the last detail.

But possibly the main reason why the whole enterprise has prospered is

to be found in the good labour relations at the port and in the way in which labour is employed. All cargo handling workers are employed on a full-time basis (no casual labour is engaged) and, to quote the Port of Felixstowe Year Book, 'There are no irksome restrictions regarding work outside the normal 40-hour week.' Moreover, the number of cargo handling workers in a gang is smaller than at other ports, and works are equipped with the very latest cargo-handling devices.

The outcome of all this, to quote Trelawny, is that our productivity per man is extremely high compared with the situation in other ports. Even with traditional dry cargo traffic, we use the unitised load system, which has not been acceptable in other – overmanned – docks. As to predictions that we would be faced with a lot of redundancy problems, these have proved to be so much rubbish.

Containerisation International 1969

The container pier today... the container port of tomorrow

Containerised vessels, handling only containers and nothing else, have startled the transportation world with their remarkable improvement in efficiency both in port and at sea. There is, however, mounting evidence that a place will exist for many years for yet another kind of vessel; a 'jack-ofall-trades' or 'combination' vessel.

No one now doubts the success of the completely containerised vessel. This type has proven beyond any doubt that it saves shippers a fortune every year in export packing costs, it reduces pilferage and damage, it permits the vessels to make twice the number of voyages each year than could the conventional cargo carrier, it reduces the cost of handling for both shippers and vessel operators, and reduces the time in transit.

Such 'fully' containerised vessels now regularly load and unload at The Port of New York Authority's Elizabeth, New Jersey container terminal, at a top speed of 3,200 tons of cargo per hour. Typically, a ship with 28,000 tons of cargo to load and unload in containers spends a total of only fourteen working hours in port, for an overall average of 2,000 tons of cargo handled for every port hour.

Compare this with the conventional cargo vessel rate of loading and

unloading of only about twenty tons per gang hour. With five gangs working such a vessel, the result is the grand total of 100 tons per vessel working hour, so the ship stays in port for 280 working hours to load and unload the same 28,000 tons.

Container berths require container crane foundations and rails. The future will see the ports operating all their container berths as a single terminal unit for all ships calling there. The large shore cranes will be used jointly. A single ship will be able to obtain the benefit of four to five cranes working at one time and will be able to get in and out of the port in less than a working day. The port will have hundreds of acres of paved land to marshall containers.

The faster a ship works, the more land is needed. The port will also want shed space for packing and unpacking containers. LCL cargo from local areas will be delivered to the port and assembled into container loads at the packing house.

Large fully-containerised vessels, though offering maximum benefits, may only be utilised by the major ports that possess good tonnage volume of commodities that lend themselves to containerisation and where port facilities exist.

The past practice of conventional ships calling at many ports on the same coastline does not apply to container vessels. Container traffic along the US North Atlantic Coast, for example, seems to be developing at only two load centers rather than at the five ports previously. The others may now be served by feeders, or overland.

The Port of New York estimates that by 1975 it will handle 8.8 million tons of foreign general cargo in containers. Much of this cargo will move in vessels over 800 feet long. We are therefore further enlarging our facilities at Elizabeth and Port Newark to handle these ships and this tonnage. At total development the Elizabeth and Port Newark facilities will include over three miles of quay ideally suited to handling large container vessels, and a total open paved area of over 900 acres.

However, the need still exists to improve on the cost and speed of shipping between ports that do not yet have all the qualifications for the 'full' containership. Take for example the new vessels of the Atlantic Container Line. These operate between Elizabeth, New Jersey, and Bremen, Rotterdam, Antwerp and Gothenberg.

They might well be called the 'jack-of-all-trades' ships because of their great flexibility in accepting different kinds of cargo and packages, loading

out of a stern ramp while also working with shore-based cranes over the side. These ships are 650 feet long, of 16,000 deadweight tons, and transport commodities that either do not physically or economically require the use of containers (containers cost about \$2.00 per ton of cargo carried).

The ACL vessels arrive with about 1100 autos on wheels, which are driven off under their own power. They also have the capability of handling deck containers with a shore based crane, and the ability to roll special cargoes on or off on low-slung trailers, such as heavy machinery, tractors and steel.

The age of fully containerised ships has been established, yet the conversion to these types of ships will be relatively slow on the trade routes which do not yet have sufficient road and transportation systems as well as adequate port facilities. During this interim period each port must now begin planning and obtaining large land areas to meet the eventual needs of fully containerised shipping. Meanwhile, they will find themselves faced with the need to accommodate combination cargo vessels which are designed to handle both conventional cargo and containers.

At most existing conventional piers with relatively narrow aprons, container operations must be carried out independently of conventional packaged cargo operations since such piers cannot conveniently conduct both operations simultaneously without severe interference. Ship's gear is seldom adequate to handle containers and the load capacity of the aprons is usually too low to sustain mobile handling equipment.

Under these conditions the normal operation is to load and discharge the containers from the water side using barges and stick boats (floating cranes). This method requires that the containers be loaded aboard barges with the stick boat, and then moved to the ship and again transferred by stick boat. Obviously, this incurs costly double handling and is slow. It does, however, assist the simultaneous handling of containers and conventional cargo.

The most common situation that ports will be facing in using existing conventional piers will be the case where a combination ship carries containers on deck and in the square of the hatch. Normally, inbound containers on deck are discharged first, followed by the unloading of the conventional packaged cargo, then outbound conventional cargo is reloaded, and finally the outbound containers.

The steamship lines try to put as many containers as possible on deck. They are providing deck fittings which will enable them to stow containers two high. As a result, it is conceivable that combination cargo ships will carry as many as 150 containers. Assuming a rate of discharge of about six containers per hour, it would mean that approximately 25 hours are needed to unload the containers.

It is, therefore, obvious that the conventional cargo operations must proceed simultaneously with the loading and unloading of containers. Significant savings of time could be effected if the existing conventional pier is capable of supporting a crane. This crane need not be a large rail mounted container crane of the type used for loading and unloading fully containerised ships. In fact, such a crane does not have the ability to swing and therefore can only handle a few containers from a single position in connection with a combination ship.

In summary, at an existing conventional pier, enough open area must be provided to marshall the containers and transfer them to ship, apart from accommodating the normal truck and rail traffic generated by the conventional cargo operation. An area sized to handle double the number of containers normally on a ship should be ample for container marshalling.

The wharf structure itself should be capable of sustaining loads for a mobile crane. An alternative to this would be the installation of crane rail foundations to support a crane capable of handling containers.

A Lyle-King 1968





CONTAINER LEASING

Surveyors and things

The expletive expelled by Don Cook was drowned by the echo of the bang made by the door of the container, as the wind howled across the vast expanse of what was once one of the largest war-time aerodromes in Europe, and was now a container storage and repair depot.

It wasn't so much the 'bang' of the door closing that drew the expletive, it was the more ominous clunk as the first locking stage of the cam mechanism engaged in the cam retainer. Then it went dark, which provoked another stream of expletives.

A kick at the offending door confirmed his worst fears when it only moved an inch, sufficient to let in some light but not enough to allow an exit.

Never mind, thought Don, the forklift driver who had been lifting containers out of the stacks for survey will let me out. Then he remembered that it was lunch time and the driver had departed for his break.

What a life, stuck in a 40ft container in the middle of nowhere on Friday at lunch time.

A philosophical person, Don settled down to wait, patience being a virtue often practised by men of Don's profession. At least his incarceration was accidental and not like that of the depot estimator he'd heard about in London. That man had not been blessed with a kindly nature, and as a result of his dealings with independent surveyors visiting his depot, had been enticed into a 20ft container, the doors of which were then locked and the container placed four high in the stack. The objectionable estimator spent a long food-free lunch contemplating his calculator and his previous wicked treatment of his fellow creatures. He was eventually released – a much chastened individual whose attitude to others was considerably improved.

Don also pondered the case of a young surveyor visiting a dock office in Hull who, on being requested by a large docker to move his car as it was blocking a container movement, replied that he was too busy with his paperwork and he would do it later. About 30 minutes later he went to where he'd parked his mini, only to find it re-parked on top of a 20ft container. Get out of that!

Don knew he would eventually be released, but no doubt to a barrage of noisy comments and leg pulling. He just hoped he wouldn't wind up with one of those apt nicknames for which the people of Liverpool are so famed, like the rather arrogant marine surveyor who, when checking a repair list against a container, was found searching for the rain gutter (this is located just above the doors) at the front or opposite end of the container. This poor individual was forever afterwards entered in that depot's appointment book as 'Driprail', an alternative name for the rain gutter.

Don was eventually released from his temporary prison, very cold and very hoarse, after an observant depot manager noticed his uncollected briefcase in the office at the closing time of 5:30 in the evening. He instituted a search. As far as is known, Don was the butt of some jokes, but was spared a nickname.

Containerisation spawned many support industries, one of which was storing and repairing containers. The greatest drawback of the containers themselves is their propensity for damage. The next great drawback is the cost of repairing it.

In the early 1970s, almost all container inspectors worked for the owner of the container: either the lessor owner or the shipowner. Container lease agreements make the lessee, as hirer of the box, responsible for any damage which occurs during the period of the lease, and as no two inspectors will ever independently arrive at the same total of repair cost for a container, the need for joint off-hire surveys arose.

While every depot has its own repair estimator or container checker, neither it, nor every business which owns or operates containers, has its own local inspector. The need arises, therefore, for a surveyor who could act independently on behalf of either of the contractual partners.

Large independent inspection organisations now provide centralised systems, controlled by computers, and with representatives in every major port (and many minor) in the world. Considering the fees charged, the services provided are exceptional. The container surveyor will go to any lengths to 'get' his container, even after a war. In order to ensure the safe transport to the Falklands of stores and armaments, the British army leased many containers. When hostilities were over a container inspector was sent to the Falklands to take an inventory of the containers and report on their condition. After much searching, the surveyor had identified and inspected all but two of the containers. He was having a drink, on the night before his departure home, in a local hostelry, talking to some armed forces personnel, and happened to mention his two missing containers. One sailor asked him what colour these big tin boxes were, to which our intrepid surveyor replied red. The rating pointed out that this was interesting, as two big red boxes had been filled with cement and used as the main foundations for a breakwater and jetty near Port Stanley.

Never one to give up, the tenacious inspector organised a navy diver the next morning to check the prefix and serial numbers of these red foundation units. They were eventually found to be his two missing containers.

George Fawcett 1995

Boxing clever

Container leasing has long been an established part of the international container transport business. Its growth as a service industry, supporting the equipment needs of transport operators, has been dramatic. It has undoubtedly helped containerise ocean borne trades across the world. Container lessors continue, in the sophisticated market of the 1990s, to underwrite much of the risk associated with container ownership. They still play a vital role meeting equipment shortfalls and imbalances.

Yet, there remains something 'maverick' about the business of box hire. Container rental firms may only exist to serve the equipment needs of shipping line customers, but the sheer scale of their operation has enabled them to influence trends in the market (and not always for the best). The leasing sector has often courted controversy.

The opportunistic nature of the business has attracted many entrepreneurs. Over the years, colourful participants have come (and frequently gone) adding new twists and turns to the story. Although there have been surprisingly few bankruptcies, numerous firms have fallen victim to takeover.

Nobody can deny that container leasing is big business. Over 45 per cent of all maritime containers in service worldwide are currently owned by rental firms. This huge inventory amounts to four million TEUs and has an estimated replacement value of at least US\$10 billion at today's prices.

It includes all types of standard and specialised containers. The lessors' current annual purchase of container equipment similarly runs into billions of US dollars. Not a bad achievement, given that the concept of container hire has been around for less than three decades.

As the container industry's leasing sector has gained in stature, and become a multi-billion dollar operation, so has it become increasingly sophisticated and service oriented. Long gone are the days when containers were simply offered on term or spot lease. Lessees can now take advantage of highly tailored lease agreements covering a huge range of service options.

Some lessors guarantee equipment 'minimums' (to be made available at specific times and locations). Others offer built-in insurance or provide options for lease-purchasing. As varied as the contracts on offer are the prices paid for such services, and the payment options available to customers. A growing 50 per cent of the entire leased fleet is now tied up on some form of high-service (or 'master') lease agreement rather than on standard long-term contract. The factors determining pricing levels, and profitability, for container leasing companies are similarly complex.

Although dictated by the immediate needs of the container shipping industry, rental revenue is ultimately tied to the performance of world trade as a whole. Return on investment is affected by other factors over which the lessor has only limited control, such as original equipment prices. The container leasing industry of today believes it is leaner, fitter, more mature, more professionally run, and therefore more predictable, than in earlier years. While few people deny this, nobody can say exactly where the business is heading.

Container leasing has its origins in the 1960s, when it was launched by a handful of forward-looking entrepreneurs. The most influential was James Sherwood, who went on to found Sea Containers and has run the company ever since. The idea of renting containers did not, however, become commonplace until the 1970s. There was a massive boom in the demand for leased equipment during that decade, as shipping lines rushed to containerise their services. Many wished to use their capital for the purchase and operation of new-generation containerships, and readily sourced their container requirement from the various new leasing companies then starting up.

The 1970s contained some of the most profitable years ever to be enjoyed by the box rental industry. The demand for leased equipment was running at a premium. Those companies lucky enough to be in business were often able to charge what they liked. This was the period when the waster lease was born, when per diem rates were reported to be in excess of US\$5 per day, and when the leased fleet achieved exponential growth. Lessor owned inventories actually grew from just 100,000 TEUs in 1970 to more than 1,500,000 TEUs by 1980. Excluding the brief recession of 1975 76, the fleet size grew by 30-50 per cent per annum throughout the whole decade. Company earnings followed much the same pattern.

This was also the period when the leasing sector attained its established structure, which has largely held good ever since. The industry took firm root in the US. There emerged a block of US heavy-weights, dubbed the 'seven sisters' after the oil industry acronym. A huge number of small and medium-sized leasing firms, variously financed by private capital and investor backed funds, began trading in Europe.

By the start of the 1980s, leasing companies owned the majority of all container equipment. Their collective purchasing then vastly outstripped the corresponding investment in new containers made by shipping lines for their own account. Per diem earnings, although they were down on the best years in the 1970s, were still high enough to ensure a good level of return. The industry appeared set to go on growing.

This 'golden' era did not last long. The profiteering of the late 1970s had already sown the seeds of dissolution. The performance of the leasing industry was markedly different in the 1980s, and was to witness plenty of change. The problems started in 1982, when the world economy again slumped into recession. The leasing sector was, by then, vastly over-stocked with equipment and quickly experienced a savage cut in rental revenues and utilisation. Daily rental rates fell below US\$1. The term 'free days' (accorded to containers leased for lengthy periods for no charge) became an industry by-word. Annual fleet growth came to a standstill.

The next five years saw company fortunes ebb and flow, although the industry did not recover its poise again until the late 1980s. The market hit rock bottom for many companies in 1986, after which it started to improve again. Three of the original 'seven sister' companies (including the largest, CTI) had already disappeared by 1988, having fallen victim to mergers. Innumerable smaller companies had gone the same way. The great 'private investor scandal', which had seen many unfortunate individuals lose out financially to unscrupulous (and sometimes fraudulent) container management companies, had by that time also come and gone.

The dubious practice of selling containers to investors for a marked up price, with the promise of a very high annual return (earned from projected rental revenues), was a hallmark of the late 1970s and early 1980s. It cast one of the darkest shadows across the entire container leasing industry.

Investor-backed schemes were heavily used by leasing companies in Europe to fund equipment purchase, even though they had long ceased to be viable. The concept was finally laid to rest with the spectacular collapse of firms such as Landless, Artu and Containerworld.

The industry of the late 1980s was much leaner than it had been five years previously. A new tier of hard-nosed 'second generation' companies, then typified by Genstar and Tiphook, had emerged and were jostling for business alongside battle-hardened survivors from the 'seven sisters' group (headed by Transamerica Leasing, Itel Containers and Sea Containers). Small companies were becoming increasingly niche-oriented and had largely stopped trying to compete for mainstream business with their larger rivals. Many middle-sized companies had vanished altogether.

The newly slimmed down leasing industry was rewarded by a run of five good years, when it witnessed the return of a more stable market. Many companies further consolidated their position between 1988-92. There was a big rise in the number of fleet takeovers and mergers. It is estimated that more than 30 such mergers have been concluded between leasing companies over the past decade, involving the transfer of more than three million TEUs. Amongst the earliest victims were Flexi-Van and Xtra, which sold out their container assets to Itel and CTI (which sold out to Genstar).

Subsequent transactions have involved many other big names. Sea Containers first sold out its dry freight/tank equipment to Tiphook in 1990 and then acquired the CLOU box fleet in 1993. Itel relinquished its entire container fleet to Genstar at the start of 1991. Numerous deals were struck through 1991-93, culminating in the 500,000 TEU sell-out by Tiphook to Transamerica in early 1994. That the industry attracts big participants, playing for increasingly big stakes, is clear from this single transaction which cost Transamerica more than US\$1 billion.

The various fleet mergers have further concentrated the leasing hegemony within the US. In contrast to the fragmented, cosmopolitan character of the container shipping business, the leased fleet is now concentrated in the hands of a very small number of companies. The 'seven sisters' of old have given way to around ten market leaders, which hold upwards of 95 per cent of all leased equipment. Eight of these companies are based in the US, and six in San Francisco. The remaining two are headquartered in the UK.

The two largest companies are Genstar and Transamerica, which control more than half of all leased containers between them. They are, respectively, subsidiaries of the two US corporate giants, General Electric Credit Corp and Transamerica Corp. The top ten ranking comprises a mixture of corporations and professional management firms. The latter use funds raised through public limited partnerships and other approved investor-backed funding schemes. Such schemes are a far cry from the private investor finance raised in Europe 15 years ago, in that they are sustainable and generally profitable for investor and management company alike.

The concentration of so many containers in the hands of a relatively small number of leading firms has not been entirely welcomed by shipping lines, who obviously prefer to be able to shop around. It has also had a hearing on the way the supply of leased containers has been balanced against demand.

It is generally accepted that the container leasing industry over ordered new container equipment in 1991-93, with some of the largest companies committing to the greatest amounts of purchasing. Top companies alone took almost one million TEU during that two-year period and expanded their collective fleet holding by more than 20 per cent.

The huge deliveries taken by Tiphook during this period were, in part, instrumental in causing its subsequent downfall. Other majors, such as Genstar, Transamerica, Textainer, Sea Containers, Cronos and Matson, contributed to the developing glut of container equipment. This depressed utilisation levels and brought down lease rates during 1993. The fact that these giants have so great a purchasing power gives them the potential to distort production trends. Just as they can cause an oversupply of equipment, so are they capable of creating shortfalls. They were quick to reduce their rate of purchasing in 1993-94, which has rapidly brought the supply of containers back in line with demand.

The leasing industry of today is a more sober affair than in past years, and is less inclined to make judgements wildly out of step with the true market. As firms have become bigger in scale and more sophisticated in their operation, so are they operating closer to the margin. They have less room to make a mistake. Those which do will likely fall victim to takeover.

Gone are the speculative days of the 1970s and 1980s. Many observers even predict that the cyclical demand pattern, which has been a recent hallmark of the industry, will be better handled in years to come. The future may be just as difficult to predict as it was 10-20 years ago, but the industry is likely to maintain a steadier course. Yet one should never forget that container leasing is, and always will be, an opportunistic business. It will still spring the occasional surprise.

Andrew Foxcroft 1995

Second careers for containers

Have you ever wondered what happens to all the containers that are retired from their primary use as conveyances for the international shipment of goods?

The world's fleet of containers now stands somewhere in the region of 12 million, and given an average international or primary life expectancy of approximately ten years, approximately 12 million containers are retired each year.

The majority of containers are forced into retirement not due to a major accident but due simply to old age, or a little ill-health, or because they become obsolete.

There is no 'Happy Valley Rest Home' for containers so these retirees must find gainful employment in the secondary usage container market.

This secondary employment can often be very ingenious and is not just limited to the storage of goods at the local builders' yard or sailing clubs' premises. True, a standard steel container does serve as a secure, yet movable storage facility, but many other more unusual uses have been found.

Take the case of the Flemish dairy farmer whose farm was spread over a typical low lying area of polder country, criss-crossed by small drainage ditches which contained three or four feet of water. Traditionally his only option when he wanted to move his cattle from one part of his land to another was to hire a livestock lorry and transport the cattle by road. A regular event that not only proved to be expensive but was also stressful to the cattle, resulting in a lower milk yield.

The answer was to purchase a number of retired platform containers, which when placed over his ditches served as very effective bridges. They were cheap and easily moved. Result: happy cows, happy farmer.

There was one case of an African bee-keeper whose apiaries were inside

a secondhand insulated 20ft container. The bees' hives were built into the container and access to the outside world was via small apertures in the walls, through which the bees could fly at will, each hive having its own opening. The exits were marked with a particular symbol, e.g. circular, triangular, and so forth which, remarkably, the bees recognised and thus returned to their individual hive each time.

The African sierra is not exactly lush with nectar-producing flowers and a retired container, full of bees, quickly exhausts the local available supply of nectar. Answer: mount the container on a chassis. Every two weeks the beekeeper drives to his container at night, blocks the entrances to the hives, and transports the retired container and its contents of bees to a fresh location with available nectar.

Another ingenious and technically advanced use was a container converted for the British Olympic equestrian team when the Olympic Games were held in Seoul. Horses have relatively delicate constitutions and in order to perform well they require a constant supply of their familiar grazing. The Korean grazing differs from that found in the UK and several retirees were converted into readily available pastures.

Their interiors were filled with channels in which grass was sown and an ingenious system of irrigation fed the grass with a special supply of nutrients. Ultra-violet grow lamps were strategically placed and a portable, self-contained English field grew as required.

A few years ago the undersigned received a call from a shipping firm that had been asked to transport ten very large aggressive bulls from Mexico to Spain.

How?

Take a fixed-end, 40-foot, flat-rack container using several hundred metres of 50mm x 50mm steel channelling and convert it into a bull carrier. The wooden floor was suitable for bull feet and once converted the container proved a mobile home complete with exercise, feeding and sleeping areas.

Demand for retirees seems to have so far kept pace with supply but as the numbers of containers contrive to increase and more and more are retired from active service, how long can this situation persist? It can't be long before supply will outstrip demand and owners will be faced with expensive disposal problems. This would be felt hardest by the leasing companies whose containers still account for approximately 60 per cent of the world's fleet. Presently, part of the calculation of buying and renting
containers is the attractive disposal value which used containers command. If this becomes a cost rather than a profit factor, the face of leasing as we know it today will dramatically change.

Tony Newton 1995

The top container lessors – current developments

The container leasing market has followed a consistent pattern since its birth in the 1960s. Nearly all lessors enter from one of three streams. Small specialist companies with transport roots establish niche positions offering a personalised service. Liner shipping companies build third-party leasing operations based on their experience as a user. Financial institutions and conglomerates who view the industry as a basic lend-and-collect proposition move in with volume.

There then follows a process of consolidation. Lessors that stay small (say, under 50,000 TEUs) either go bust, remain independent or merge with others of slightly larger size. Medium sized operators – including the results of such mergers – get taken over by larger ones. And larger lessors get taken over by even larger ones. The driving forces are that small and specialist is fine within its niche, but once a certain critical mass is established, economics of scale make any decent-sized lessor a target for those who are larger still. The 'top three' list has changed almost annually over the past decade, and there is no reason why this will not continue.

The collapse of Tiphook in 1994 – and the acquisition of its container fleet by Transamerica Leasing – perhaps marked one turning point. Tiphook was the one small independent lessor that had made it to the top, but overreached itself by buying Sea Containers' fleet in 1990. This doubled its size but on borrowed money, and increased the average fleet age just as the market turned down. Tiphook lacked the capital to hang in.

The structure of the container leasing industry has thus again changed; the two top lessors are 'deep pockets' companies with many other interests. There is a very large gap in size before the third player.

The immediate effect of the sale was to strip Tiphook of some 526,000 dry boxes and 5,000 tank containers. Left with the much smaller trailer and rail wagon operations, Tiphook is now a minor player only. Meanwhile,

Transamerica Leasing has been elevated from third to second in the world league table, taking the position previously held by Tiphook behind market leader, Genstar. Consequently, the companies that were below Tiphook in the league table have now moved up a place. While all the major lessors do have their distinguishing features, their common motive is ultimate financial success. Some clearly equate this with continual increases in fleet numbers. Others are taking a more measured approach; happy to be judged on financial performance, they consider fleet size less important.

Genstar Container Corporation, based in San Francisco, is the world's largest container leasing company, with a fleet of 1.18m TEU. Founded by container leasing's pioneer, Thomas Tan, in 1981, it has been part of the US giant General Electric Capital Corporation since 1986. It has grown rapidly since then through acquisitions, notably CTI (1987) and Itel (1990), and by newbuilding. It is now market leader in dry box containers and reefers. Genstar has achieved a low overhead cost structure, especially by focusing on enhancing computer systems. Having said this, there have been indications that size has become a negative factor.

Transamerica Leasing Inc is the oldest of all major container lessors, its origins stretching back to 1963. The acquisition of the Tiphook container fleet has virtually doubled its total fleet to just under the one million TEU mark. The company is considered financially and logistically able to handle an expansion of this magnitude. Transamerica Leasing has been a subsidiary since 1979 of the publicly quoted financial services group Transamerica Corporation.

Transamerica Leasing has grown steadily over the years from its headquarters in New York, building a substantial fleet comprised of dry boxes, reefers and tanks. At the same time, it has developed a reputation for offering a high quality of service and is one of Transamerica Corporation's most profitable divisions. Funding is generally provided by the parent company, supplemented by occasional fund raising on its own account. With the financial strength of its parent in mind, it presents a much stronger challenge to Genstar than the stand-alone Tiphook ever could.

Triton Container International Ltd is San Francisco-based and Bermuda-registered. It is now third in the market with 280,000 TEUs. It manages owned containers (approximately 80 per cent of the fleet) as well as containers owned by third parties. The company was founded by Gordon Player, Wilfried Pabst and Edward Schneider in 1980, with the latter two still in the senior management positions. It has used its offshore registration to effectively conceal details of its finances and control. It is thought that the founders do have a significant equity stake, but that the business also has substantial outside investment. This has enabled Triton to avoid direct competition in the capital markets with peers like Textainer and Cronos. The company has shown sustained growth, focusing on newbuild dry boxes and reefer containers. Its main selling point is a standardised, high quality, young fleet. Though its investors appear to have access to substantial funds, they cannot be regarded as a bottomless pit. It is therefore likely that Triton also has a significant level of debt to maintain its state-of-the-art fleet.

Textainer Inc was founded in 1979. Headquartered in San Francisco, it is registered in Panama. There was a significant restructuring of the business in 1987, when James Hoelter and John Maccarone, formerly of IEA, took over the management of the company. It is understood that Hoelter and Maccarone bought an equity stake and may have introduced new backers, although the original shareholders are thought to have retained an interest. Since Hoelter and Maccarone took control, Textainer has been following an ambitious expansion policy. This has seen its current fleet reach 400,000 TEUs by 1995.

Unlike its competitors, Textainer has been concentrating solely on building its dry box fleet, rather than advancing in each sector of the market. The company uses limited partnerships to raise finance, and it is regarded as particularly skilled in this method of funding. There may, however, have been an adverse impact on utilisation rates as the expansion of the fleet continues apace. At the same time, Textainer currently has the youngest fleet of the majors, averaging at three years old, and the appeal of this cannot be underestimated.

Trans Ocean Leasing was established in San Bruno in 1973 by two senior Itel executives, Greer Arthur and Marvin Dennis. Arthur and Dennis retain the senior managerial roles today, as well as a significant shareholding. Contrin, a Luxembourg-registered investment group with other container interests, also has a substantial equity stake. Trans Ocean has developed rather differently from some of its competitors, preferring to develop a broad range of specialised equipment rather than to build up its standard fleet. Where possible, it has grown by acquiring the fleets of smaller companies.

Since 1985, for example, it has acquired the fleets or the management rights of various companies including Traco, Nautilus, Unispeed, International Container Leasing, Trinicon, Redcliffe International and Dolphin Containers. In each of these cases, Trans Ocean has acquired specialist equipment. This has led to ambiguity regarding its fleet size and has made comparison with its competitors difficult. It has around 100,000 TEU dry boxes, and by taking into account a higher weighting for the value of reefers, it claims an overall fleet equivalent to 300,000 TEUs. By conventional measurements, it is probably closer to 200,000 TEUs. No financial details are published, but the company does appear to have access to considerable lines of funding and is thought to be operating profitably.

Sea Containers Ltd is the father of the container leasing industry, and stands out among the major container lessors in that it is involved in the leisure industry and port and ferry investment, as well as container leasing. The company was founded in 1965 by James Sherwood, still its president. It is legally domiciled in Bermuda, operated from London, and is quoted on the New York, London and US Pacific Coast stock exchanges. The company was very much reduced in size in 1990 following the takeover by Tiphook and Stena Line of various assets. Tiphook acquired its dry box, tank container and chassis fleet, while Stena Line acquired Sealink British Ferries.

Since then, however, Sea Containers has steadily been rebuilding its position in the container leasing market. The raising of the finance necessary to do this does not seem to have been a problem. Early in 1993, the company went on record to state that over \$100m was available for investment in dry boxes and reefers. Strategic acquisitions have been made, notably Clou Container in October 1993, which added 56,000 TEUs to its fleet. The Sea Containers fleet currently stands at around 240,000 TEUs, of which 122,000 TEUs are standard dry boxes, 23,000 TEUs are reefers and 91,000 TEUs are specials.

The Cronos Group has its origins in 1978. The style and logo 'Cronos' was adopted in 1991, following acquisition of Intermodal Equipment Associates (IEA) by Leasing Partners International (LPI) and its subsequent integration into the group. The founding shareholders of LPI included Stefan Palatin (now Chairman of Cronos Group) and Larry Sargent (now Deputy Chairman). Cronos is privately owned, with CG Holding SA in Luxembourg as the ultimate holding company. Headquarters is Cronos Containers Ltd in Windsor, UK. There is also a US subsidiary, Cronos Containers Inc, with branches in San Francisco and New Jersey.

From a financing point of view, Cronos cannot match the potential resources of the market leaders. However, it has very well organised lines of funding, designed to meet its own plans for a steady expansion of the business. It has continued with funding systems set up by IEA and LPI. IEA raised funds through limited partnerships in the US, whereas LPI managed reefers on behalf of third parties, as well as purchasing reefers through debt financing and investing profits from operations. Cronos' total fleet is now around 190,000 TEUs, mainly dry boxes and reefers, having grown from 86,000 TEUs in 1989. The company entered the tank container market in June 1993, where it now has a small but growing presence. Its fleet is a combination of owned units (approximately 12 per cent), and units managed on behalf of investors (approximately 88 per cent).

Matson Leasing Company is the youngest of all the majors, having been formed in 1989. It is a subsidiary of Matson Navigation, a container and roro shipping line operating between the US West Coast and Hawaii. The ultimate owner is Alexander & Baldwin Inc, a US public corporation with interests in the sugar industry as well as in transport. Under the management of Fred Gutterson, the San Francisco-based Matson Leasing has become a significant player and currently owns 150,000 TEUs. These are all dry boxes. The company has no specific fleet target and does not attempt to emulate the market leaders by building a huge fleet. Its main aim is to be profitable and, in pursuit of this objective, it is adopting a prudent approach to the building of its fleet. In both 1991 and 1992, when market conditions were good, it acquired 50,000 units; however, in 1993, when the market softened, purchasing was reduced by 70 per cent. Matson Leasing was established with start-up capital from its parent. Funds are still provided by the parent, but it would appear that it is now able to operate increasingly on a stand-alone basis.

The last of the 100,000+ TEU group is Interpool Inc. This is a publicly quoted, New York-based lessor. Originating in 1968, the company was fourth in the world by the mid 1970s. Since then, it has dropped down the league table somewhat, though it is still in the top ten by most measurements. Rather than go all out for growth like some of its competitors, Interpool has taken a conservative approach to building its standard fleet, while concentrating on the niche sector of chassis leasing. It is now acknowledged as second behind Flexi-Van in this sector, and as a specialist in this area it has been able to achieve high earnings.

Starting out as a privately-owned business, the parent company, Interpool Inc, now has a significant level of public investment. The company operates through two private subsidiaries, Interpool Ltd of Barbados and Trac Lease Inc. It has a history of complicated changes in ownership, and to some extent can be regarded as a phoenix rising from the ashes since 1990. This was when the original owners, Warren Serenbetz and Martin Tuchman, effectively regained full control of the business and embarked upon rebuilding the company's fleet to its present total of 100,000 TEU dry boxes and 40,000 TEU chassis. The offering of shares to the public has provided the necessary funds to do this.

For the future, the largest companies with the greatest reserves will still be, as likely as not, able to offer the lowest day rates. However, the marketing differences between all the leaders are still going to count, and the desire by the major lessees to avoid dependence on just one or two lessors should continue to ensure the spread of business. Meanwhile, the leading liner companies will maintain their own fleets, but without ever being able to completely accurately predict demand, their need for leased units will continue to generate revenue for the lessors.

All of the leading container lessors are now quite well established in their own right, and have adopted their own strategies for the future, which seem reasonably sound, by and large. Provided that they are not tempted to go for unsustainable growth, as Tiphook did, they should be able to more or less retain their current positions. On the other hand, the industry for all independent lessors is becoming more difficult, not having the economies of scale to compete, especially on master leases. For similar reasons, new entrants into the market will need to find substantial financial backing to stand a chance. In short, further consolidation of power at the top might be expected for the future.

Jonathan Fyvie

MRC Business Information Group Ltd, Oxford (1994)





LOSS AND DAMAGE

Box tracer

Since the early 1980s, Norwegian captain Oddvar Karlsen has made his living tracing lost containers. While business has diminished in recent years, Karlsen's detective work has made for an intriguing international career.

'The weak market in the liner business has forced companies to tighten up control of their containers. Nowadays, most liner companies have large computer systems running their container operations,' Karlsen says. Consequently, Karlsen and his company, Arendal-based Datatracer International, also offer tracing of lost cargo shipped by air or rail. The company made a profit of NOK 2m (US\$ 294,000) last year.

'Now we are working for an insurance company to find 138 containers that have been lost for about seven months in Latin and South America,' Karlsen says. So far, Datatracer and its network of agents in 140 countries have recovered 55 of the containers.

Following the bankruptcy of United States Line in the mid-1980s, Datatracer was hired by three of the banks involved, which overnight found themselves the owners of thousands of US Lines' containers scattered all over the world. Datatracer's task was to map the whereabouts of every single container, get them out of expensive harbour storage and sell them.

'We searched for thousands of containers all over the world and we managed to find about 75 per cent of them,' Karlsen says. The advantage in that case was that the containers were not stolen and that Datatracer was hired shortly after the company was declared bankrupt.

Some years ago, Datatracer was assigned by US tax authorities to make a survey of where 37,000 containers were at any given time between 1981 and 1985. The authorities were involved in a dispute about the depreciation in the value of containers and whether the containers had been used in US traffic or not. 'After six months' work, we had mapped out the whereabouts in the entire period of 17,000 containers,' says Karlsen. He then delivered the material to a statistician at the University of Illinois, who calculated the average time spent in the US for the remaining 20,000 containers. For the shipper who some years ago lost a shipment of laser equipment en route from Germany to Baku in Azerbaijan, the cost of hiring Datatracer was certainly worthwhile. After a four-month investigation, the container and its cargo were found eight kilometres outside Baku where, for some reason, the container had been thrown off a train.

Another shipper tried to con his insurance company by claiming that two containers of shoes, shipped from Portugal via St Petersburg to Moscow, were lost. Datatracer got hold of a receipt proving the shipment had in fact been received.

When shipping valuable goods to eastern Europe, several insurance companies demand the container door be secured with two 50cm-long metal plates welded on to the container wall. It's not only cargoes to eastern Europe that run into trouble, though. A Swiss shipper sent a container full of watches to Uruguay, but when it arrived, the container was loaded with nails, weighing the same as the original cargo. It's still a mystery who replaced the valuable timepieces with the rather less valuable nails.

Loss of empty containers, rather than their cargoes, is mainly a problem in Africa and Asia, where the boxes are used as living quarters. People who cannot afford to build an ordinary house may find a 40-foot container and cut windows and doors out of the walls.

Tradewinds 1994

Prevention better than cure

As British Lines' representative in East Africa in the early eighties, Nacala in Mozambique was my problem. The job encompassed everything from riding shotgun on block trains to being shot at whilst landing a plane at the Nacala Military airport with all the British Lines directors on board (not good for promotion prospects).

That Nacala is a very remote port was illustrated when I suggested the agent call the fire brigade to deal with a class 5.2 box which was fuming. I was informed the nearest fire brigade was in Nampula (200km away) and last time it took them two days to get to the port.

Attempts to remove the offending hydrogen peroxide flasks failed uncomfortably for lack of breathing apparatus. In the congested port the only free space was on the quay apron but the Captain of the Russian submarine on the berth objected to us moving the container next to him. Taking the container out of the port also proved a problem and a long argument ensued with the gate security whilst the container fumed merrily on the front loader next to us.

Eventually we were permitted to place the container on the football field just outside the gate where it promptly exploded. The heat from the fire oxidized the number onto the only remaining fragment. Should "Buccaneer" Capetown want this returned, please send a repositioning credit and an airmail stamp.

Peter Cave 1995

Containers save jump jet

Tenerife, 7th June – Local Press reports Royal Navy Sea Harrier ex HM aircraft carrier ILLUSTRIOUS forced-landed at 2100, 6th June, on m.v. "ALRAIGO" some 120 miles SW of Oporto, on passage from Bilbao to Tenerife.

Madrid, 7th June – A Royal Navy Sea Harrier made an emergency landing on "ALRAIGO" off Portugal last night after losing radio contact with ILLUSTRIOUS, a British Embassy spokesman said today. The 'plane's pilot said he had fuel for only one minute's flying time left when he made the landing. He said he could not make radio contact with the master of the Spanish vessel and used hand signals to indicate his intention to land. The ship's crew then guided him down onto a makeshift landing pad of eight cargo containers placed between a deck crane and the ship's bridge. The pilot said one wheel slipped from the platform as he touched down and the heat from his engines nearly set fire to the containers. The crew lashed the 'plane to the ship's deck, where it is secure but tilted at an angle, he added. – Reuter.

Tenerife, 9th June – The "ALRAIGO", on which a Sea Harrier landed last Monday (6th June), arrived here today. A spokesman for the Spanish naval command in Tenerife said the "ALRAIGO" had anchored in the outer harbour and was waiting for instructions before docking. Britain's Consul in the Canary Islands, the Air Attaché from the British Embassy in Madrid and a British Ministry of Defence official were there to meet the vessel, a spokesman for the British Consulate in Tenerife said. The vessel's owners had said they might claim salvage for the 'plane but after a meeting between British and Spanish officials and the owners a company spokesman said today no decision had been made. A number of British Navy technicians have also flown to Tenerife to inspect the 'plane for any damage sustained as it landed, the British Consulate spokesman said. – Reuter.

London, 9th June – The owners of the 'ALRAIGO' have initiated moves to claim salvage from the British Government over the Sea Harrier which made an emergency landing on the vessel. Any damage to the containers used as a landing platform and their cargo would be claimed by the cargo owner from the vessel. The owners of the vessel would include this amount in the claim against the Government. The Ministry of Defence said it would consider fair and reasonable claims. The containers on which the aircraft is resting are thought to container furniture, and those to the front, whisky and milk.

London, 14th June – The Treasury Solicitor has succeeded in having the salvage arbitration involving the Sea Harrier which landed on 'ALRAIGO' moved to London, the traditional centre for such procedures. It is expected that a Lloyd's Standard Form will be signed today and the Government has taken the unusual step of giving an undertaking to abide by the award,

Extracts from Lloyd's Weekly Casualty Reports June 1983

Permissive user – lost and found in New York

The plaintiff, who was 18 years old, was a passenger in a pickup truck which ran into the rear of a tractor/trailer in New York State. At the time the tractor/trailer was attempting to pull onto the left shoulder from the left lane, having encountered engine problems following refuelling. The facts indicate that the drivers of both vehicles were negligent. The plaintiff suffered severe head injuries which have left her with significant disabilities.

New York traffic legislation renders every owner of a vehicle (including a trailer) used or operated in the State vicariously liable for bodily injuries resulting from the negligence in the use of such vehicle by any person using or operating the vehicle with the permission, expressed or implied, of such owner. In this case, the chassis was interchanged to a trucker carrying for shippers six months before. Shortly before the accident, the chassis was picked up by an unauthorized trucker for another carriage. It was being returned at the time of the accident.

Thus, in the State of New York, the law presumes that permission was given, and it is the responsibility of the owner to rebut that presumption. The member in this instance was unable to locate the interchange contract between them and the shipper's trucker. In the absence of that agreement, it was impossible to establish that the diversion of the chassis to another trucker should rebut the presumption of permission.

Due to the complexities of the case, it proved impossible to settle before the trial started, by which time the plaintiffs demand was standing at US\$5 million, and a jury award would probably approach US\$3.5 million. However, during the trial, hearing only the liability aspects, the judge recommended to plaintiffs attorney settlement at US\$1.8 million, which was ultimately accepted.

Peregrine Storrs-Fox 1991





CRIME, CONTRABAND AND WAR

Lax procedures

An entire 40-foot container of clothing worth almost half a million pounds was stolen from within a United Kingdom container terminal. The container had been landed and cleared by Customs, and was awaiting inland haulage by the shipping line's agents. However, prior to haulage, an unidentified driver took a truck to the terminal and, using a unit load note from the agent's own stock, bearing the agent's genuine stamp but a false signature, was able to remove the container from the terminal. The theft was not discovered until the genuine driver came to collect the load the following day.

To understand how this was done it is necessary to look at the port clearance procedure. Prior to the arrival of a vessel the shipping line's agent prepares for the clearance of the container and its cargo. From a detailed ship's cargo manifest, the shipping agent will prepare a discharge manifest, as required by the port, which includes container details and a short description of its cargo. Copies are prepared and distributed to the terminal operators, stowage planners, port health, Customs and so on.

There is therefore considerable opportunity for anyone working at the port to find out what cargo is in a particular container. Once notified by the consignee or his clearance agent that the cargo has been cleared by Customs, the shipping line's agent prepares a unit load note giving authority for the container to be removed from the terminal. When the shipowner's contract of carriage ends at the port, this note is simply handed over to the consignee against his production of the original shipper's bill of lading. Also, where still owed, against payment of freight.

With 'through carriage' terms, however, once the consignee or his agent have obtained Customs clearance, the shipping line's agent arranges with a trucking company to commence onward transport, (inland), under the same contract of 'through carriage' by which the container arrived by sea. In order that the port will release the container, the agent provides the trucking company's driver with a unit load note.

This particular shipping agent had been in the habit of stamping the whole batch of unit load notes prior to the arrival of a vessel, and storing them either in an unlocked drawer or in an open tray. The notes were therefore easily removed by anyone, even by an outsider waiting in the office.

Further, not only was anyone in the shipping agent's office allowed to sign the unit load note, but there were also no specimen signatures at the terminal control gates, rendering this safety element worthless.

It was found that in addition to the lax procedures of the shipping line agent, the terminal operator's gatehouse had also been at fault. The seal number on the container, it was established, had actually been different from the seal number on the unit load note. Had this been spotted, the container would have been stopped and would have been subject to some further checks.

Ian Hyslop

Container Crime, ICC International Maritime Bureau (1987)

Anti-smuggling notes

Concealing illegal drugs within the walls, floors, ceilings, and frames of containers and trailers has become a very common method of smuggling large quantities of illegal drugs into the United States. Smugglers have also utilised the framing, fuel tanks, air tanks, tyres, and other component parts of trailers and container chassis. Although smugglers are becoming quite sophisticated in their concealment methods, much of their handiwork can be detected through routine, systematic examinations.

When examining a normal front wall of a dry van container, both the corner blocks and the corrugation between the marking panels and the front wall are visible. False walls have been detected where the smuggler has manufactured false corner blocks, but the false wall was flush against the marking panel. Additionally, the false wall may be of the same type of corrugated metal as the legitimate front wall. Other telltale signs of alteration include fresh paint, welding burns on either the interior or exterior of the container wall, variations in wall texture or lack of corrugation, and the odour of fresh paint, burnt wood, or body filler.

The floors in unaltered containers are normally flush with the door frame. If the floor boards protrude above the level of the frame or appear new, not level, or slanting upward toward the front wall of the container, then a possible false floor may exist. Another method of detecting a false floor is to reach for the ceiling upon entering the container and walk toward the front wall. If this is done routinely, a change in height, or the ability to touch the ceiling should be evident if the floor has been altered.

The construction of false ceilings can either be internal or external. The external false ceiling, or false roof, can be detected by observing the distance between the top of the corner casting and the top of the roof. If the roof is above the castings, then a false roof may exist. An internally constructed false ceiling can be detected in the same way as a false floor, by reaching for the ceiling. Other telltale signs may also be present, such as fresh paint, obscured corner blocks, welding burns, and the like.

The use of container frames to conceal drugs is the most difficult to detect. Without other telltale signs, detection is normally possible only by drilling the frame and probing.

The interior of a reefer container offers more places to conceal drugs than any other type of container or trailer. The interior walls, ceiling, and doors are separated from their exterior counterparts by four to six inches of insulation. At the front of a reefer, a baffle wall separates the refrigeration unit from the cargo. Protruding through a cut-out section of the baffle wall is the interior section of the blower duct. From this duct, a plastic or canvas tubing system runs the length of the container to distribute the cold refrigerated air.

A false front wall may exist if the baffle wall reaches right to the floor or the ceiling, or if the interior blower unit barely protrudes into the container. Smugglers have peeled back entire walls and replaced the insulation with contraband. On occasion, small sections have been hollowed out and patched. New rivets, calking, glue or wall material, creases where the wall was folded back, or a wavy or uneven wall might be evidence that it was altered to conceal contraband.

Where van trailers and container chassis are carried on ro-ro ships, smugglers will simply leave small packages of contraband in existing cracks and crevices in the framework of the undercarriage. Tanks that supply air to the air brake system have often been disconnected and filled with contraband. Tanks containing only air should give off a clear ringing sound when struck with a metallic object. Tyres have also been used to conceal illegal drugs. Normal tyre pressure is 80 pounds per square inch. Under-inflated tyres may conceal illegal drugs. Detecting contraband in tyres can he accomplished by using the tap method. Place the finger-tips of one hand on the tyre tread and tap the opposite side of the tread with the other hand or with a blunt instrument. A clear ringing vibration will be felt if the tyre contains only air. If there is contraband present, there will be a dull thud and little vibration. Other telltale signs of possible concealment in tyres include fresh scratches on lug nuts, clean lug nuts on an otherwise dirty wheel, and fresh paint or grease on lug nuts.

It is very easy to use existing or false cavities between the chassis' two main longitudinal beams and the underside frames of a container, especially in the area close to the attachment pin.

Brigadier BAH Parritt

Security at Sea (1989)

All fingers and thumbs

'Fingers' Smith was something of an enigma. He was undoubtedly at the very top of his trade, and yet he could never quite shake off his working class background. Hence his penchant for shabby sports jackets, loud ties and flat caps which, throughout a lifetime of crime, had become as much a 'Fingers' trademark as had his habit of incessantly chewing gum. 'Fingers' was, in a word, a thief, and a very good one at that.

On a cold, dark evening in February, in the heart of the Sussex countryside, he was just putting a fresh wad of gum into his mouth when the headlights of a large vehicle swept the deserted farmhouse where he had spent the last two hours sheltering from the howling wind. The driver of the container lorry wound down the window of his cab and, giving the universal 'thumbs up' sign, backed up his vehicle to where 'Fingers' was frantically motioning.

Two hours later, it was done. The container had been relieved of its entire contents of whisky and loaded down with a 'cargo' of bricks and rubble. What is more, nobody was going to discover the theft for a very long time because, thanks to the ingenious ramp that 'Fingers' had fashioned in an out-building of the farm, it had been possible to tilt the vehicle on its side and remove the door hinges, thereby gaining access without leaving any visible signs of entry. Replacing the whisky with just the right amount of bricks and rubble had been another of the master-strokes of the kind for which 'Fingers' had become famous, since there would be no problems when crossing the weighbridge.

The doors had been replaced with the same ease that had characterised their removal, and the looted vehicle was now well on its way on its journey to the coast. All in all, 'Fingers' felt very happy and allowed himself the luxury of a few moments spent basking in the reflected glory of a job magnificently done. In all his years of crime, 'Fingers' had never once left so much as the suggestion of a fingerprint anywhere.

He made a final check around the farmhouse to make sure he had left behind no tell-tale clues. Satisfied, he broke open a fresh wad of gum and, in a reflex action, removed the piece that he had been chewing since the arrival of the lorry and rolled it into a ball and threw it carelessly aside. He departed the scene of the crime just as the rising sun was about to herald the start of a brand new day.

Relaxing in his bed-sitter in the heart of London's East End some days later with a few cans of ale and a take away-curry, he was surprised to hear a sharp rap on the door. Opening it just a fraction, he was horrified to behold the swarthy features of the chief inspector from the local constabulary with whom he had so many encounters in the past. 'We've got you this time 'Fingers'' said the officer. 'Fingers' opened his mouth to protest but, even as he did so, knew it was futile. In the inspector's large, horny hand was a small glass container and, in it, a large wad of chewing gum. On it was the impression of a large thumb, quite the clearest finger-print 'Fingers' had ever seen.

Chris Hewer and Michael Grey

On the Rocks – Tales of Shipping and Insurance (1982)

Transport crime in Russia today

The territory of European Russia now seems to have been carved up amongst different Mafia groups. Valuable cargo is unlikely to find its way across this territory unless some accommodation is made with the relevant group. This accommodation can be by straight payment, or it can be by security measures sufficient to persuade an attacker to concentrate on softer targets.

The TT Club has come across many cases where the necessary accommodation has not been made, or perhaps the victims have been unlucky. The following case is typical: a driver arrived at the consignee's warehouse in St Petersburg with a cargo from Latvia. He was met by a group of female staff. He gave the ladies the documents for the cargo and one of them made a telephone call. The driver went to the customs post and handed over the documents. After a delay throughout the afternoon the customs officer returned to the driver and said that he wished to inspect the cargo. Together they broke the seal and looked into the container and then closed it without resealing it.

The driver asked the customs officer to let the warehouse know that he was about to return. He then set off back from the customs post to the warehouse. In the centre of St. Petersburg he was stopped by two persons in the road. One of them entered his cab and said 'man, if you want to live don't joke.' The second man went to the back of the truck whilst his colleague ordered the driver to drive. They reached a supermarket depot where the vehicle stopped and the two men made a call on their mobile telephone.

The driver was then told to drive on until he reached a forest, where he was blindfolded and the contents of the container transferred into a truck. By this time it was the early hours of the morning. Finally, the driver was then taken to the Russian/Latvian border and told not to return to St Petersburg.

The weakness of official structures, together with the developing criminal culture and the inexperience/lack of linguistic ability of drivers has also encouraged documentary fraud.

In one recent case eight containers of vodka, gin and ethyl alcohol were consigned from western Europe to six consignees in Moscow. The west European shipper gave precise instructions to the forwarder, and also handed over a document which appeared to be an indemnity against the consequences of missdelivery and for import duties and taxes. The containers were carried by sea to Finland, and on-carriage to Moscow was initially sub-contracted, and then sub-sub-contracted again.

The first problem arose when it was noted that the invoice for one of the containers had been artificially under-quoted, so the goods could not be imported into Russia. When the remaining seven containers reached Moscow, five out of the six consignees could not be found. These six containers, therefore, had to be returned to Finland. The remaining container was accepted. However, this was a 'jump-up' along the lines described above. The driver and container truck were arrested on their way out of the Russian Federation.

The result of this was a substantial loss to the cargo owners, although in the resulting complex legal and practical situation it was not completely clear who the cargo owners were. Further, there were claims for demurrage and detention of the trucks. Attempts to hold the shipper liable under his indemnities have not been completely straightforward, firstly because of the lack of contractual connection between the shipper and some of the links in the chain, and also because of the risk that the shipper will disappear or not have the resources to meet the final claim.

In western Europe's court rooms there are signs that a severe line is being taken against carriers who are subject to armed robbery or jump-ups. It is becoming increasingly difficult for a carrier to argue that this type of attack is something which cannot be prevented. There are even signs that cargo claimants may 'break limitations' under International Conventions because the carrier has been reckless in losing the cargo.

In order to stand a chance of avoiding this type of claim, the carrier has to take the most stringent precautions; for example, employing armed bodyguards and travelling in convoy. A further, and more sensitive step is to employ specialist 'security consultants', some of which operate internationally from the west. Others are based in the former Soviet Union. Their methods are necessarily secret. Nevertheless their approach is likely to be a combination of the two factors mentioned above: paying the Mafia (and the police), and protecting cargoes to the extent that the Mafia (and the police), will be attracted to easier targets. The main problem with this, from the carrier's point of view, is the unremunerative cost. This has to he met by shippers or consignees. The problem is not likely to be resolved until it is cheaper to pay for special measures than to accept the inevitable loss of cargo.

Clearly there are new rules and precautions to be learned in carrying cargo into the former Soviet Union.

Ian Hyslop 1993

A containerised stowaway

The TT Club's Board of Directors has the power to allow claims which 'were not thought of when the rules were drafted. This 'discretionary cover' corresponds to the traditional P&I concept of the 'omnibus rule.' A more elegant definition would be that the cover will be applied in circumstances which would have been covered if they had been contemplated when the rules were issued. Such claims are not very common in practice.

However, in November 1988 an NVOC member arranged to send the personal effects of a 43-year-old lady, Mrs Harper, from the United States to South Africa. On arrival in South Africa local stevedores were surprised to hear tapping from inside a 20-foot container. The container was opened to reveal Mrs Harper, along with her effects. She had packed baby food to sustain herself and made careful sanitary arrangements.

The South African Authorities insisted on her repatriation to the United States. The NVOC member was presented with the repatriation costs together with costs for her detention in an expensive hospital in Durban whilst her mental condition improved sufficiently for her to return to America. The P&I Clubs of course offer stowaway cover to their shipowner members. The TT Club removed the equivalent cover from the Rules before 1988 because there had never been a claim and it was thought to be slightly ridiculous – who, after all, would wish to stowaway in a container? This member's claim was agreed.

Ian Hyslop 1994

An inferior goods fraud

Sometimes a fraudster will select a victim in another country and will sell small consignments of goods to him over a period of time, to establish a basis of trust. Then he will offer a substantial consignment at an attractive price, in order to defraud him.

Other fraudsters will go to the trouble of actually shipping goods. This is usually in order to obtain genuine Bills of Lading. The goods will invariably be of a different type, quality or quantity to those ordered.

In one case both these techniques were employed. In December 1983 two middle eastern companies opened four Letters of Credit for approximately \$1.3 million in favour of a London-based partnership called International Business Company. The middle eastern companies had previously traded over a period of time with an associated company, Intertrade Group. The Letters of Credit related to the importation of large consignments of tea, milk powder and baby foods.

In March and April 1984 the Letters of Credit were negotiated against Bills of Lading and backing documents which indicated that these goods had been packed into a number of containers and loaded on board the vessels *Korean Jacejin* and *Neptune Garnet*. When the containers arrived in Sharjah and were discharged, not only were many of the goods missing, but those that did arrive were totally different, and inferior, to those ordered. Investigations revealed that International Business Company's address was a photocopying shop in a fashionable part of London which provided a forwarding address service. Interestingly, the application form to use this address was signed as 'S Singh' and the forwarding address given was P0 Box 223, Rio de Janeiro, Brazil! S Singh was a totally fictitious person and was the 'front' used by three Indian brothers who engineered this fraud.

The brothers left London fast but not before cashing the Letters of Credit and transferring the funds into a secret account at the Swiss Bank Corporation, Zurich.

Ian Hyslop 1985

Insuring the uninsurable

The Spanish Civil War that raged from 1936 to 1939 had a profound effect on world public opinion at the time. Few people, however, know that its effects are still felt in the London international insurance market even today.

It was only during that war that underwriters in the London market appreciated the enormity of the exposure that they had to the risks of cargoes that they insured being damaged by the fighting in the Spanish ports. At that time, there were no appropriate 'small-print' clauses in the policies that underwriters could rely on to exclude damage of this nature from the cover.

The insurance market moved swiftly to remedy the situation; an agreement was concluded between all the underwriters concerned to exclude from all policies that they issued the risks that have come to be known as 'War Risks on Land.' The Agreement itself, which dates from 1937, is called the 'Waterborne Agreement' as it effectively limits insurance against the risks of damage by war to the period when the goods insured under the policy are physically on board a sea-going ship (or on an aircraft). Once the goods have been landed, they are uninsured for War Risks after a storage period typically no longer than 15 days.

The dominance of the London market, particularly in the field of reinsurance, was and is, such that the Waterborne Agreement came to apply virtually throughout the world, since it was incorporated not only into the primary insurances issued in the London market but also into all reinsurance contracts placed there too. The Waterborne Agreement has therefore endured for more than fifty years and even today it is almost impossible to buy insurance for goods against War Risks on Land from the commercial market. A few brave underwriters might be prepared to write a small line on such risks, but the amount of cover they could provide would be limited, since their reinsurance contracts would not accept risks of this nature.

The rationale behind the exclusion of War Risks on Land from commercial insurance policies was that the aggregation of risk involved was potentially too onerous to be absorbed by the private sector and that it was the responsibility of governments to protect their nationals against risks of this type. However, as so often happens when private enterprise creates a void that the public sector is expected to fill, the public sector either neglects or declines to do so. Thus today, with the exception of certain schemes in France and Norway, restricted to the protection of their respective national interests, the international trading community has virtually no protection against War Risks on Land, a situation that gives rise to increasing concern in a world where armed conflict abounds.

There is one exception. The TT Club, whose 25th anniversary this anthology celebrates, provides cover for containers against War Risks on Land. This cover was developed in the early 1980s. This type of innovation is not in itself surprising; we would expect a Club to be keen to extend its services in response to its Members' urgings. But in this instance, the challenge was tougher than most, since the Club was being asked to insure what the conventional wisdom of the commercial insurance market had for decades regarded as 'uninsurable.'

The catalyst for change was the revolution in Iran in 1979 that brought the Ayatollah Khomeini to power and the war that subsequently broke out between Iraq and Iran in September of 1980. As a consequence of these events, liner operators serving the Northern Gulf, whose containers were insured with the Club, lost many hundreds of boxes through war damage, requisition commandeering, and the general breakdown of law and order. Even if it proved possible eventually to locate the missing units, there was no practical way of retrieving them. The civil and military authorities of the belligerents had other cares than the return of empty containers to their owners.

As a result of the upheavals, millions of dollars worth of containers had to be written off. When claims for these losses were subsequently presented to the Club and other insurers, they had to be declined on the grounds that, in most cases, the proximate cause of loss was War Risks on Land, a peril excluded from the policies in compliance with the Waterborne Agreement.

Several prominent liner operator Members of the Club, including a number represented on the Board, took the view that, if nothing could be done to cover the Iran/Iraq losses, then steps should certainly be taken to remedy the situation for the future. No easy task, since all conventional insurance avenues were effectively closed!

But the history of the mutual clubs showed that one of the most powerful reasons for their creation and survival in the nineteenth century had been their willingness and ability to insure risks that the commercial market either did not want to insure at all, or was only prepared to insure at a cost and on conditions that the potential insureds regarded as unwarranted by the risk involved. As operators they thought themselves better able to evaluate such risks than the underwriters in their boxes at Lloyd's. The club's system is essentially a co-operative; why not develop a co-operative dedicated to the insurance of this risk, which would stand or fall on its own experience?

So, at a meeting of the Club's Board in June, 1981, the Directors authorised the Managers to investigate the possibility of creating a mechanism within the TT Club for providing insurance for containers against risks of the type that had caused such severe losses on the recent outbreak of conflict in the Gulf. The problem was, where to find the capacity (or capital) to cover the risk? The number of liner operators needing the cover was always likely to be relatively small; in consequence, the money to be generated from their premiums would be modest at best. It would have been unwise, as well as unfair, to expose the general reserves of the Club to such a volatile risk; and the traditional way of adding capacity to the insurance of a risk – reinsurance – was apparently unavailable by reason of the Waterborne Agreement. The breakthrough did not come until 1st January, 1983, when the Club opened a new class for the insurance of War Risks on Land. By that time, support had been gained from some thirty liner operators, whose premiums were estimated to produce a pool of about US\$500,000. In addition, the Club's reinsurance brokers, Miller Insurance, had managed to find some capacity in the US market that was not bound by the Waterborne Agreement, and was prepared to back the project for an initial period of two years. This added further capacity of US\$1,000,000.

But a claims-paying power of around US\$1,500,000 was not likely to be sufficient to cover in full all the claims that might arise from a major international upheaval. In this event should the element of claims that exceeded the resources of the War Risk on Land funds be paid in full, (by effectively subsidising them from the general funds of the Club), or should the claims be reduced pro-rata to the War Risk on Land funds available? The latter solution was chosen, and the pro-rating of claims still remains a feature of the War Risk on Land cover given by the Club; if the totality of War Risk on Land claims exceeds, in any one year, what is described as the WROL Maximum, then claims are pro-rated to that Maximum, which currently stands at US\$3,500,000.

During the twelve years that insurance against War Risks on Land has been available from the Club, the number of container operators buying the cover has varied between twenty and thirty. It is disappointing that more Members have not used the facility, but not, perhaps, surprising. The possibility of claims being pro-rated downwards is, of course, a negative factor, but in practice it has never yet been necessary to invoke the prorating powers. It is also possible that the true value of the cover is not widely appreciated; in addition to the risks of loss and damage arising from hostilities, losses arising from nationalisation and requisition by foreign governments are also covered.

For those lines that have had the cover, it has provided good value. In the early years the cover paid for containers that had been requisitioned by the Lebanese army in Beirut, and for other containers taken in that city for use as barricades! In 1984 and 1985, the cover paid for containers that had been stranded in Mozambique as a result of the civil war there. 1989 saw the first claims occurring in the western hemisphere, arising out of the troubles in Panama.

One year later, the invasion of Kuwait by Iraq in August, 1990 brought the biggest ever claim under the War Risks on Land cover. Four Members were insured under their WROL cover for lost containers. Although some of these units were eventually retrieved, the Club reimbursed the Members in excess of US\$2.3m. Sadly, some other Members of the Club were not insured for WROL Risks at the time and had to bear their own losses uninsured.

At the time of the invasion, most of the containers were in Kuwait. Many of these were removed to Iraq by the invading forces. Countless containers were destroyed in the fighting and a number were stranded in areas which were heavily mined. A claim by the Club has been submitted to the United Nations Compensation Fund which is financed by the war reparations sought from Iraq. However, by mid 1994, 2.3 million claims totalling some US\$30 billion had been made against the fund, with more to follow, so it is likely to be a long time, if ever, before the Club makes a recovery!

The premium for War Risks on Land is based on the value of equipment insured and not on claims record. The rate is the same world-wide, except that, for reasons evident from the preponderance of claims received, the rate is higher for the Middle East and for Africa. Even the heavy claims of 1990 did not exceed the WROL Maximum for that year of US\$3,500,000; as a result, the claims did not have to be pro rated and they were all paid in full. The year did, however, give rise to the first-ever claim upon the War Risks on Land reinsurers.

The experience of the Club in War Risks on Land insurance over the period 1985-1993, as reported to the Board in October 1994, showed a loss ratio before reinsurance of 77 per cent. Not a bad record, one could say, for insuring an 'uninsurable' risk!

David Martin-Clark 1995





GOING UNDER

Seatrain - visions of grandeur?

It begins to look as though Seatrain, which launched into the North Atlantic trade 18 months ago, is scanning much broader horizons in its long-term corporate planning. Right now much of its effort is assigned to moving the accelerating North Atlantic operation into top gear. But it appears that success here may be only a base camp for future ventures.

Though an imperfect conference structure may have permitted Seatrain's entry into an already overtonnaged North Atlantic, the establishment still points a finger at Seatrain's methods in catching the cargo. After 18 months, Seatrain's competitors are having to take the line's bid for a place up front more seriously than at first. Seatrain's controversial and seemingly reckless injection of brand new hardware – the line now has 11,000 '40's assigned to the North Atlantic operation – has finally started to pay dividends.

Seatrain is also confident that its new 26-knot ships will pull back the inevitable losses of the start up phase and provide vastly increased capability to back the continuing drive for more cargo. Looking ahead the key question is how Seatrain will assign its third and fourth gas turbine ships – scheduled for delivery later this year and in early 1972.

North Atlantic operators are currently discussing a peace formula that would hopefully restore profitability to the revenue-starved trade within a few months from now. If agreement over pooling can be reached the competitive picture could change markedly and Seatrain could well delay any plans to allocate the remaining gas turbine ships to the North Atlantic. The line could conceivably hold the remaining Euroliner class ships for assignment in the Pacific; maybe for the Hawaii run or perhaps as the cutting edge for penetration of the US/Far East or US/Australia markets.

Seatrain is systematically dismantling its controversial reputation and building an image of professionalism. Seatrain critics, dismissing the line as a high flier, have sometimes overlooked the fact that containerisation is only one of the big group's revenue earners, others including a major stake in shipbuilding.

There is thus a very substantial corporate shoulder behind the container wheel – which is useful to cushion any losses, as Seatrain has discovered already. As Seatrain's container involvement has increased, so its management has been beefed up with container-oriented professionals. Seatrain belongs to the new generation of containership operators, strictly marketing- and profit-oriented, and unhindered by traditional shipping line practice.

That type of background and business approach has been the thread linking Sea-Land's consistent success. It could be that Seatrain ultimately aims to chase the leaders to a powerful global container involvement.

Containerisation International 1971

TFL's offer Seatrain couldn't refuse

Faced with sizeable fourth quarter losses in its US/north Europe services and still financially strained by its prime rate debt burden, Seatrain Lines has quit the Atlantic. In a \$28.5 million transaction recently concluded with Thomas Nationwide Transport, the carrier effectively transferred its various transatlantic links to TNT's Trans Freight Lines.

Operationally, the deal covered the subchartering out by Seatrain subsidiaries of six chartered vessels and the leasing of about 7,000 containers and chassis. However, there was no guarantee that TFL would pick up Seatrain's customers, and in the UK some Seatrain salesmen were reportedly advising use of Farrell Lines.

Over the past few years Seatrain is known to have been involved in serious business/financial discussions about its European services with companies as disparate as the UK's Overseas Containers Ltd (OCL) and Evergreen Line of Taiwan, as well as various Arab interests, but all to no avail.

Axing the service has given Seatrain more leeway for its next round of financial manoeuvring and released it from the pressure to find new charters in an expensive market. Its withdrawal from the Atlantic has abruptly ended six years of sustained growth in its systemswide TEU capacity which, after a decline from 13,348 TEU in 1974 to 10,906 TEU in 1975, rose successively each year since then to peak at 26,667 TEU as of June 1980.

Most secure seems the future of the carrier's trans-pacific operations which, despite the chronic rate instability in that trade, continue to be profitable. Indeed, the fact that Seatrain has chosen to put its re-designed Euroclass vessels into that market seems a good indication of its long term intentions there. If the Seatrain/TFL deal ends over ten years of fluctuating transatlantic fortunes for Seatrain (it made its debut in 1969), then for TFL it can be seen as the culmination of over four years of efforts (it started its service in July 1976) to establish itself as the independent alternative to the conference carriers on the Atlantic. At a stroke the \$28.5 million deal makes TFL one of the largest operators in the Atlantic. It should also generally help to stabilise the overall trade.

There is to be no change, though, in TFL's non-conference status. Arwood points to his company's four years of successful trans-atlantic operations as a 'responsible and responsive independent carrier' as proof of the wisdom of such a strategy.

None of the remaining Atlantic carriers is displeased. As one put it: 'It's certainly better to have one competitor than two.'

Jane RC Boyes

Containerisation International (1980)

Seatrain sales away

Seatrain Lines, the foundering US container carrier whose shares were suspended on the New York Stock Exchange early in December 1980, was, at the time of writing, negotiating with Dodwell & Co Ltd (part of the UK's Inchcape Group) and the C Y Tung Group for these companies to acquire the 74 per cent stake that it (Seatrain) had in Pacific Seascape, which operates as Seatrain Pacific Services.

The sale of its Pacific interests is but one of several conditions laid down by Seatrain's principal banker, Chase Manhatten, early in December, with respect to an additional loan of up to \$5 million to Seatrain.

The suspension of the company's shares on the New York Stock Exchange followed Chase's demand for payment of certain of Seatrain's obligations. In fiscal 1980 Seatrain lost \$30.1 million and in the first quarter of fiscal 1981 (ie the three months ending 30th September 1981) it recorded a loss of \$4.9 million. The probable sale of its Pacific operation, following as it does on the disposal of its transatlantic interests to Traos Freight Lines and Cast marks the virtual disappearance of Seatrain from the liner scene.

Containerisation International 1981

The US nine

A great deal has been written and said about the crisis currently afflicting the US merchant marine. Few would deny it has problems; on the container front alone US flag lines each year carry a smaller percentage of their nation's traffic.

'The industry in general, and our government in particular, have both been slow to use what works, stubbornly slow to discard what doesn't work, and reluctant to try what might work – all to such an extent that many foreign governments and foreign businessmen judge us inept.' So observed Charles I Hiltzheimer, chairman and chief executive officer, Sea-Land Industries Investments Inc while recently reflecting upon his 18 years' experience in the US-flag liner shipping business.

His comment, by no means unique, is particularly apt in the container context. For, it is ironic that the country which gave the world containerisation, should have been (with the exception of a few of its carriers) slower to adapt both its fleet and its shipping policy to the needs of the container era.

The reasons for such collective gloom become apparent when one considers that whereas in 1970 the US boasted 19 liner shipping companies, today there are only nine. Of these only four, American President Lines (APL), Farrell Lines, Sea-Land and US Lines, operate full container services with either purpose built container ships or converted-to-cellular vessels.

The total number of TEU slots provided by the US steamship lines in foreign trades (domestic shipping services have been omitted) only grew by 5.3 per cent between 1975 and 1980. By contrast, analysis of successive US port traffic shows that between 1975/79 US port container moves as a whole (they do include domestic traffic) expanded by almost 23 per cent.

Latest available figures from MarAd also bear out this trend. Whereas in 1972 US flag vessels carried 40.9 per cent of the commercial container traffic (this excludes military cargoes that are flag-directed anyway) handled by US ports, in 1978 this share had dropped to 31.4 per cent. Significantly, the decline has set in since 1975, for between 1972/75 the US flag share of non-military cargoes actually increased. The demise of PFEL in 1978, States at the end of the same year and more recently Seatrain Lines, resulted in the successive withdrawal of several thousand TEU.

As for Waterman, whose interest in containers has always been marginal anyway, it decided towards the end of 1980 to stop hauling boxes on its newly established US/Far East Lash service. Finally, the acquisition by MarAd at the end of 1980 of four of Farrell's vessels, when the line rationalised its services in an effort to improve its financial performance, also reduced total capacity.

Jane RC Boyes Containerisation International (1981)

Over capacity calls for rates rise or ship scrapping

Storm clouds of oppressive over-capacity, largely in the form of 36 new ships being built for round-the-world scheduling strategies by US Lines and Evergreen Line overshadow an already saturated market stuck in a depressed real money freight rates dilemma. Now they threaten to break up the existing structure of the world deepsea container scene during 1985-87.

In a study published earlier this year by Container Insight it was argued that the average revenue achieved per TEU by four leading carriers, Sea-Land Service, OCL, American President Lines and US Lines, taken together, rose by only 23 per cent during 1976-83 against OECD general price inflation of almost 50 per cent during the same period.

To bring about a reversal of this trend would require that the market achieves an average across-the-board increase of over 20 per cent during 1985, on top of the rises implemented this year, and at a time when the new round-the-world schedules will be dynamically making their presence felt through intense, possibly cut-throat, competition on the mainstream routes.

Since, therefore, the chances of a return to 1976-79 real money freight rate values seem remote, what then are the prospects for any substantial scrapping or withdrawal of slot capacity? So far the signs are extremely weak, especially since the military sector appears to have satisfied most of its medium-term requirement for commercial acquisitions. Moreover, in cases where existing mainline ships are likely to be withdrawn from service during the next three to four years, the chances are that such vessels will in any case be replaced by (possibly) fewer, but bigger and more economical fleet units.

Since the level of deepsea containership newbuilding capacity on order is, virtually irreversibly, equal to 40 per cent of the 896,000 TEU of shipboard slots in service (as of 1st January), something within the market will have to give, the more so in the absence of traffic growth anything more than the maximum 25 per cent or so anticipated for the period January 1984 to December 1986.

There have been no signs as yet that any currently active modern capacity will be scrapped and then not replaced. As with ACL, major operators of oldish cellular steamships like ACTA/ANL, Columbus Line and Zim will almost certainly replace such capacity with ultra-economical hardware. Even if the number of newbuildings proves to be fewer than the tally of steamships replaced, the chances are that more actual slots will be built than are taken out of service.

A good case in point is the expected move by Sea-Land: five presently chartered-in vessels of average 1,427 TEU size are due to be replaced by six newbuildings of at least 3,000 TEU apiece – indicative of a 110 per cent boost in capacity, quite apart from the fact that the five smaller vessels are not just going to sail away.

The CY Tung Group may well decide to order more 2,500 TEU-plus vessels and, after switching various existing fleet units around its myriad route network, the most that can be expected is the withdrawal of older, smaller ships in the 800-1,200 TEU range. And there is no guarantee that Tung would scrap such displaced tonnage; it could well be sold into eager, even competitive, hands.

Likewise, Evergreen intends to sell, rather than scrap, any of the F-class (960 TEU), S-class (878 TEU) and V-class (1,214 TEU) vessels it ultimately designates as being surplus to requirements when all of its 2,728 TEU G-class newbuildings are in service early in 1986.

Other carriers, right across the range of attitude from China Ocean Shipping Company to Trans Freight Lines, are either building up big new containership fleets, or have plans to modernise. In the absence of any concerted moves to net scrapping, such a trend, when related to the negative freight rate pattern of recent years, could combine to create a complete breakdown of the market as it exists today. There is only going to be a limited improvement in the traffic volumes available on the mainstream trades. The ability of lines to maintain even the recently implemented increases in rates is sure to come under very great pressure as the round-the-world schedules of US Lines and Evergreen challenge all comers.

Consequently, slimmer load factors and stagnant, even falling rates could spell disaster for a large number of unprepared combatants in the market.

RF Gibney

Lloyds List (1984)

Hellenic in Chapter 7

Following the late March decision of Judge Burton Lifland, of New York, to convert Hellenic Lines' Chapter 11 status to one of liquidation under Chapter 7 of the US federal bankruptcy code, the prospects for the carrier's survival appear slim.

Hellenic had been attempting to reorganise its affairs under Chapter 11, which protects a company from its creditors. However, the decision of the federal judge to rule in favour of the motion of the creditors' committee which sought to have Hellenic liquidated by a trustee appointed by the court, put paid to its recovery efforts. The line's New York operation has been wound down following the departure of many of its staff.

These moves in New York have inevitably placed a question mark over the future of the company's Greek arm and its office in Piraeus. In the meantime the sale of the carrier's vessels continues, despite efforts by Hellenic to delay such auctions.

Containerisation International 1984

McLean's dozen will give him room to turn

Although the late April announcement by Daewoo Shipbuilding and Heavy Machinery Ltd, of South Korea, that it had successfully concluded a \$570 million contract with United States Lines for the construction of 12 x 4,218 TEU containerships, ended months of debate over whether or not the deal would ever materialise, the news has done nothing to dampen speculation as to how US Lines' owner Malcom McLean intends to deploy his new tonnage and the vessels he has successively acquired from other US carriers over the past few years. However, with Daewoo reporting that the steel cutting for the new ships has already started, and with the first of them scheduled for delivery in the final quarter of 1984, conjecture will soon give way to reality.

McLean has himself fuelled this mounting tide of speculation by his consistent, but characteristic, refusal to comment on record about his plans for the new vessels in particular, and US Lines in general.

Nevertheless, McLean has let it be known all along that he intends to mount a weekly eastabout round-the-world service, a feat which appeared challenging enough when he was aiming for 14x4,148 TEU, 18.5-knot ships (his original intention), but now seems tougher with only a dozen units. But it is far too early to write off his round-the-world ambitions. Those who respect and know McLean well, believe that this is still his goal. McLean has already proved the sceptics wrong on two counts. There were those who doubted his ability to put together the multi-million dollar financial package needed to back the order and his determination to go for 4,000 TEU plus containerships.

The great virtue of McLean's 'bath tubs', as some have already dubbed the ships, is their reputedly low overall cost. On the basis of per TEU slot construction costs, US Lines' \$47.5 million ships come out on top. The current \$11,261 per TEU slot cost of the new contract is lower than the \$13,529 per TEU slot price tag of the original deal. This newest price compares favourably with the per TEU space costs which a host of US Lines' competitors have paid, or are aiming to pay, for the tonnage they will be deploying against US Lines.

It is significant that it is well below the \$13,392 TEU slot price which Evergreen Line of Taiwan claims to be paying for its 16x2,240 TEU, 21 knot 'G' types which are currently being constructed for its planned eastabout and westabout round-the-world service. McLean also achieves a per-slot cost well below the \$19,070 paid by Sea-Land for its 12 D-9s in 1980.

However, his vessels may not be as competitive as some lines assume. There are those who contend that better per-space-mile operating costs could be achieved with a slightly smaller, more fuel-efficient ship. Even so, McLean will enjoy a competitive advantage over many carriers; a benefit he will certainly need to exploit with attractive rates if he is to fill his large vessels in competitive crosstrades, such as the Europe-Far East route.

McLean's cost advantage (assuming of course he can fill his ships) is a fact which has already been recognised by a host of lines and it will be interesting to see whether such operators try to match US Lines in seeking to deploy 'the cheapest slot.' But even if they do not, there is no doubt that McLean has once again succeeded in getting many in the container industry to reassess their strategies.

Jane RC Boyes

Containerisation International (1983)

US Lines goes global

After much speculation and a circumnavigation of the globe by one of its 4,258 TEU ships in September, United States Lines has, as promised, inaugurated its long awaited round-the-world service. The operation started in late October when *American Maine* began loading cargo for Mediterranean and Far East ports at Savannah, Norfolk and New York. The voyage of *American Maine* immediately pitches US Lines into the US/Mediterranean and Europe/Far East markets. In the case of the former trade the line will be able to offer a highly competitive transit time and service and although it is not a member of the US Atlantic ports/Italy, France and Spain freight conference, its rates and tarrifs are broadly aligned with those of the pact.

When it comes to the UK/North Europe to Far East route, the service on offer (initially at least) will not be as competitive in terms of transit times as that offered by the Far Eastern Freight Conference (FEFC) container consortia, or key outsiders such as Evergreen Line. For, until it includes a direct call at Rotterdam, US Lines intends to serve UK and North European points via Fos, and as an outsider, despite recent discussions with the FEFC.

The line is aiming to use rail services to move containers to Fos, and the cost of this operation (e.g. about \$450 per box from Hamburg to Fos, and as much as \$680 per container from the UK port of Harwich) plus the need for US Lines to offer shippers highly competitive rates below conference levels, has already led to speculation among its rivals as to the profitability of its initial foray into the highly competitive Europe/Far East route.
A further telling point in the Europe/Far East market could be US Lines' concentration on 40ft containers in a trade where there is a decided bias towards 20 footers. However, it is understood that US Lines is prepared to quote shippers of 20ft-oriented cargo highly competitive compensatory rates.

In the case of the Far East/Europe route, where the carrier offers a service via Panama and the US East Coast to Marseilles Fos, US Lines is known to have been offering rates which are about \$300 to \$400 below those of the conference. For example, it was said to be quoting a charge of around \$2,600 per 40 footer to forwarders in Kaohsiung and \$2,700, again for a 40ft box, to 'ordinary' Taiwanese shippers.

Containerisation International 1984

US Lines finally files for Chapter 11

Months of rumour and speculation were ended on 24th November 1986 when McLean Industries Inc and its shipping subsidiaries filed for Chapter 11. Although trans-pacific and US/South America services will be maintained as US Lines strive to reorganise and survive under the protection of US federal courts, the carrier's ambitious round-the-world operation and its transatlantic schedule have ceased. Uncertainty surrounded the eventual fate of its 12 econships and there was apprehension in the market as to their eventual deployment.

The announcement on 24th November 1986 by the US company McLean Industries Inc and its shipping subsidiaries United States Lines and United States Lines (SA) that they had filed for Chapter 11 came as no major surprise to the container liner industry. Markets had been rife with rumours of Chapter 11, or worse, ever since the company stated earlier in 1986 that certain payments were being deferred and a debt restructuring plan sought. Indeed, dire predictions of impending doom for McLean industries abounded soon after the company's chairman and founder, Malcom McLean, made known his ambition to build super-large containerships and run them around-the-world, and well before the corporation started piling up losses in the later part of 1985.

Anticipated, but regretted, the misfortunes of McLean Industries brought a sense of temporary relief to overtonnaged markets. With hindsight the reasons for the company's problems are more discernible, and can be traced principally to its ill-fated RTW venture. Conceived by McLean in the latter part of the 1970s when oil prices were high, Mid-East markets booming and other eastbound routes buoyant, the strategy sought to give US Lines a price advantage through operating large, fuel-efficient, slow-speed vessels.

The project, which involved a total investment of over \$1 billion of boxes, chassis, port facilities, etc, was taken into account and substantially increased McLean Industries' gearing. However the expectation (gamble) was that the large vessels and RTW operation, plus McLean Industries' expansion into the South American market, would generate sufficient cash flow to service the debt.

Not only did McLean's global gamble put his company in a disadvantaged operating position, but the \$1 billion investment also undermined it financially, leaving it with hefty interest expenses which have mounted steadily over the past few years. Things really started to go wrong when a fall in revenues, largely a function of a rate war in the Pacific and reduced prices in Atlantic and South American markets, combined with rising costs (following full implementation of RTW schedules) to produce an operating loss of \$19.8 million in the fourth quarter of 1985.

This shortfall was compounded by heavy interest charges, and a net loss of \$61.5 million resulted for the three month period. Since then McLean's bottom line has never been in the black again, despite a number of measures having been taken. These included deferment of certain payments in 1986, shuffling the fleet in the middle of the year and ending of RTW calls at Marseilles Fos and Jeddah in September 1986.

Ending of RTW service by US Lines has eased things in several Mid-East markets, especially the European sector. For the aggressive pricing policy pursued by the line as it sought to secure cargo in a depressed market, of which it had little prior knowledge, had a disastrous effect on prices.

Similarly, in the Europe/Far East trade US Lines was more of a nuisance than a major threat. Outclassed by the consortia and lines of the Far Eastern Freight Conference and a band of impressive outsiders, US Lines had a disruptive effect on pricing through its use of 40 footers in a market biased towards 20ft containers. In the Pacific its withdrawal of a total of 162,240 TEU of eastbound annualised capacity, about five per cent of capacity on offer, should also relieve continuing pressure on the rates.

McLean Industries stated that its transpacific and South American

services, which 'generate a positive cash flow' would continue. The immediate plans are for these weekly operations to be maintained with their existing tonnage and ports of call.

However positive the operating cash flow of the Pacific and South American services may prove to be, they will not provide sufficient funds to rescue McLean Industries. These will have to come from a sale of assets. Up for auction would be some of the surplus older steamers, although the appeal of most of these vessels is limited. However, it is what happens to the 12 econships which was of most interest and concern to the shipping community at large at the time of writing. As of early December these vessels were in the process of being brought back to US ports, where they could be protected from arrest as a result of McLean Industries' Chapter 11 status.

The fate of the dozen 4,428 TEU ships largely lies in the hands of McLean's principal creditors. It is anticipated that the creditors will try to sell or lease the vessels. However, given current overcapacity in the markets, disposing of them by either method could prove to be extremely difficult. It is also unlikely if they were to be sold that the creditors would recoup more than 50 per cent of the original \$47.5 million contract price of each vessel. Market sources have suggested that some, or even all, of the vessels might end up with Korean carriers, in the Europe/Far East and/or transpacific trades.

It is only when a restructuring plan has been developed as part of the Chapter 11 process that the many questions which still remain concerning the future of US Lines can begin to be answered.

Jane RC Boyes

Containerisation International (1987)

Could everyone go bust?

A comparison between new container tonnage now building and probable cargo figures leaves little doubt that overtonnage will become a critical factor in the next four years in Far East-based trades.

There are two dominant themes in the boardrooms of companies competing in the Far East trades: a determination that each company, with minimum co-operation with traditional rivals, shall build enough container tonnage to achieve sufficient economies of scale to stay ahead on any route susceptible to containerisation; and a fear of over-tonnage, with too little cargo spread too thinly for anyone to make money.

By 1975 there will be over 110 containerships in the Far East trades, 28 of Japanese flag. These vessels will have a capacity of 24 million tons annually in one direction.

Plainly, despite optimistic predictions to the contrary, there must be severe overtonnage on some routes, and unless international agreements are reached on cargo distribution among both conference and non-conference lines, even more radical changes to the traditional structure of shipping in the Far Fast must be expected.

The critical question is the amount of cargo available that can profitably he containerised (working on the principle that carrying almost any cargo is better than deadheading, original definitions of containerisable cargo must now be almost unrecognisably expanded), and whether the growth of this cargo will keep pace with tonnage.

Containerisation International 1971





MILESTONES

Electronic data interchange – entangled by law

Electronic data interchange (EDI) is the electronic exchange of information between computers. The messages are in a pre-determined structured format and are not necessarily reproduced so as to be legible by humans. The transport industry has made extensive investment in the use of EDI to improve communications but, by comparison, very little has been done to simplify the legal infrastructure of the industry. Valuable resources in the multimodal transport industry are still expended in disputes about the applicability of the different transport conventions and the meaning of their provisions.

As the industry has streamlined its communications, so the law should be streamlined: instead of the present multiplicity of transport conventions there should be one which applies to all contracts of carriage by whatever means of transport, and whether unimodal or multimodal.

It was the development of containerisation that led to the introduction of EDI into the world of transport. Each contract of carriage involved large numbers of units which led shippers and carriers to use computers to record the information necessary for an efficient transport service.

Containerised goods are rarely sold at sea. They are often carried from one sister company to another. Thus there is no need for a document of title to be issued for them. Such voyages are often very short and may be completed before paper bills of lading arrive at the discharge port.

This can lead to delay in delivery of the goods. A sea waybill is the best form of documentation for such a trade as it does not have to be presented at the discharge port. In these circumstances the use of computerised waybills has become widespread. Booking information is given by computer. Contracts are produced by computer and communicated electronically to all those concerned. Delivery instructions are given by computer. These developments have increased the speed at which business can be done and the accuracy of the information passing between those involved.

EDI has resulted in the development of a sophisticated logistics industry. Many transport operators have become specialists in logistics. They no longer confine their functions to providing transportation for goods. They are involved in the entire distribution system used by manufacturers and retailers. They receive the EDI messages from the retailers and manage complete supply chains including stocking and delivery.

The use of EDI has led to 'just in time' (JIT) inventory systems. Goods are only manufactured and delivered as needed. Financial EDI systems mean that invoices, payments and receipts are generated and effected electronically. The customs authorities of a number of countries now permit importers, exporters and freight forwarders to make customs declarations electronically. Terminal operators use EDI to track and control the movement of containers in and around terminals. Information as to the numbers and location of the boxes is sent automatically by computer to all involved in the transport system. These developments speed the clearance of goods at points of import and export, wherever there is a transfer from one means of transport to another and in and out of storage. EDI can also be used for tracking the goods themselves at all stages of transport.

EDI involves the use of standard message formats which reduce the risk of misunderstandings between the interested parties that take advantage of this means of communication. Because it reduces the need for human intervention in passing information, it also reduces the risks inherent in paper communications, such as typists' errors and misplacement of the documents themselves.

The introduction of electronic communication systems into an industry involves analyses of the way in which individual businesses work, so that the new system can operate with maximum efficiency. Arising from such analyses it is often possible to reduce the number of communications. The result is that EDI not only replaces pre-existing paper documents but also reduces the number of messages necessary when paper is still being used.

Thus the introduction of EDI can simplify the way businesses operate. 'Just in time' systems make businesses more profitable by avoiding expenditure on the manufacture of unnecessary stock, reducing the space needed to store goods and ensuring payment closer to the time of manufacture. Electronic tracking, by assisting the optimum use of equipment can make transport operations more profitable overall.

Speedier clearance and interchange systems at transport network nodes increases profitability in the same way. Delays in payment, formerly thought to be good business practice, but which result in an erroneous impression of a company's finances, are significantly reduced. The use of electronic documents of title will obviate the delays in delivery of such documents and thus reduce the scope for fraud.

It must be remembered that fraud is quite common even where paper is used. Indeed the delay in delivery of paper bills of lading to discharge ports can itself lead to fraud. However, all those in the transport industry who are making use of EDI do have to make great efforts to guard against new types of fraud that have developed. Agreements between trading partners generally have extensive provisions designed to minimise the risk of fraud.

In considering bills of lading, authentication is particularly important. There will be no written signature to be examined by handwriting experts, but only an electronic message. One kind of system designed to meet this problem is based upon digital cryptography. The sender has a secret numerical cypher which he uses to encrypt his message. The receiver has access to the public key which can be used to decrypt the sender's messages. It is not possible, by use of the public key, to work out the sender's secret cypher. If a fraudster tried to create an electronic bill of lading, or to alter one already created by a sender, it would not be possible to decrypt the message using the public key because the secret numerical cypher (known only to the sender) would not have been used to create the message.

Obviously the lack of the requisite technology and official requirements for paper documents in some parts of the world currently restrict the use of EDI. These problems may mean that contracts between users will have to make provision for the production of paper documents, to replace electronic messages where necessary. The incompatibility of systems means that third party networks may have to be used, and contractual provision for these will usually be found in interchange agreements.

Bills of lading have been chosen for coverage here because they probably present greater complications than other carriage contracts. Documentary credits are considered because they are so commonly used as the means of payment in international trade. Brief mention is also made of marine insurance because of the particular English law requirement for written evidence of such insurance.

The functions of a bill of lading are threefold: first, it is a receipt for the

goods which describes their nature and condition. Secondly, it is evidence of the terms of the contract of carriage including the points from and to which the goods are to be carried, and the terms upon which they are carried. Thirdly, it is a document of title. This last function means that possession of the bill is evidence of the right to possession of the goods and that the bill can be used to transfer ownership of the goods from seller to buyer and, by way of pledge, to act as security for banks in loan or documentary credit transactions.

One further point requires consideration in relation to bills of lading. This is the right to sue the carrier for loss of or damage to the goods. Under the Carriage of Goods by Sea Act 1992 this right is given to those who take possession of bills of lading in good faith. The Act makes express provision for regulations to be brought in to extend the application of its provisions to cases where telecommunications systems are used. No such regulations have, however, yet been enacted.

The Marine Insurance Act 1908 provides that a contract of marine insurance is inadmissible in evidence unless it is embodied in a marine policy (S22). The statute also refers to the policy being 'executed and issued.' Further, there is an express requirement for signature of the policy or the use of a corporate seal (S24). These requirements are bound to give rise to difficulties in enforcement of an electronic contract of marine insurance. Thus, where such a contract is concluded electronically, the parties may well be wise to produce a materialised signed policy.

There is an underlying uncertainty in English law as to whether electronic messages have the same legal effect as paper documents. Contractual methods of dealing with this uncertainty are then examined and there is a brief review of some of the problems under statute law and international treaties to which the use of EDI may give rise.

There is no current statute or case law which provides that electronic messages can be treated as bills of lading or documents of title. It could be argued that no such express provision is necessary because there are numerous examples of legislative and judicial recognition of other means of conveying information than written documents. For example: the definition of 'writing' in the Interpretation Act 1978 includes 'typing, printing, lithography, photography and other modes of representing or reproducing words in a visible form.'

Further, Mr Justice Vinelott held in Derby & Co v Weldon (No 9) [1991] 1 WLR653, that the database of a computer's on-line system, or which is recorded in the backup files, is a document for the purposes of the High Court rules governing discovery of documents. Also, Section 10 of the Civil Evidence Act 1968 (dealing with the admissibility of hearsay evidence) defines 'document' as including 'any disc, tape, sound track or other device in which sound or other data (not being visual images) are embodied so as to be capable (with or without the aid of some other equipment) of being reproduced therefrom.' And the Copyright, Designs and Patents Act 1988 provides that a 'literary work' includes a computer program.

These examples demonstrate that English law is prepared to treat modern technology as performing the same function as paper documents. In the absence of an express statutory or judicial definition which provides that electronic messages can be bills of lading or documents of title there is a risk that they would not be treated as such. Thus it is necessary to consider whether and to what extent provisions in contracts between trading partners can overcome this uncertainty.

Traders can agree in their contracts that the legal requirements will be met by electronic communications. For example, the ICC Incoterms 1990 for international trade expressly refer to 'transport document or equivalent electronic message.' Thus under an FOB (free on board) contract the seller must provide the buyer with proof of delivery on board and an electronic message will suffice to prove receipt.

The Incoterms do not, however, deal with provisions for the passing of ownership in the goods. Therefore the parties to such a contract will have to draft their own terms dealing with the use of electronic bills for this purpose. Provisions in a sale contract will not satisfy a carrier's requirement for evidence as to the identity of the person entitled to possession of the goods. The carrier will have to be party to a contract with the traders that provides for the use of electronic messages for this purpose.

There have been a few experiments in the use of electronic bills of lading. The Seadocs system provided a central registry (legally the agent of the traders) which held the paper bill and registered changes of ownership. The carrier could refer to this registry to ensure delivery to the correct party. The Ceebol system relies on banks acting as the carrier's agents in issuing electronic bills.

Another suggestion is that there should be a bill of lading in the form of a smart card: a plastic card with a programmable chip which the carrier could issue to the shipper; it could be presented to the shipper's bank to obtain payment on the letter of credit. The bank would then authorise the issue of another card by the buyer's bank. As for the needs of banks in relation to documentary credits, these are governed by the ICC Uniform Customs and Practice for Documentary Credits (UCP 500), which do not allow for electronic messages. The ICC has just started to consider amendment of the Rules to make provision for such communications systems. In the meantime banks, which are party to schemes such as Bolero, will presumably make express contractual provisions for electronic messages which are to be used as security, and to satisfy the other requirements of documentary credits.

There are potential problems under English statute law if a stranger to the contracts which provide for the use of EDI bills of lading becomes involved in dealing with the goods or the electronic message. The Sale of Goods Act 1979 refers to 'bills of lading' and to 'documents of title.' The latter phrase has the same meaning as set out in the Factors Act 1889, which is as follows: 'document of title includes any bill of lading and any other document used in the ordinary course of business as proof of the possession or control of goods, or authorising or purporting to authorise, either by endorsement or delivery, the possessor of the document to transfer or receive goods thereby represented.'

These statutes govern situations such as the effect of the delivery or transfer of the goods and the effect of the buyer's transfer of the document of title on the seller's rights of lien or stoppage in transit. They protect the rights of innocent third parties and pledges.

The words 'document', 'endorsement' and 'delivery' may, in the absence of a contractual provision (or, possibly, widespread business practice) be held to be inapplicable to the use of electronic bills of lading. This could cast doubt upon the operation of these essential statutory provisions. When trading partners are considering the use of EDI under English law, they will have to consider whether it is possible that these statutes could impact upon the trade envisaged under their contracts.

The provisions of international treaties, for example the Hague Visby Rules and the CMR, could give rise to uncertainty if the electronic messages are considered in another jurisdiction. These conventions set out the details of the terms upon which goods are to be carried. They refer to contracts in documents such as bills of lading and consignment notes and provide for the compulsory incorporation of the treaty terms into such contracts. Where parties make those contracts electronically, and expressly incorporate such terms into those contracts, English law will probably give effect to them. However there may well be jurisdictions which would not give effect to such contractual incorporation by electronic means. To avoid the uncertainty which could arise in this respect it may be necessary to consider amendment of the international transport conventions.

The United Nations Commission on International Trade Law (Uncitral) has a working group devoted to electronic data interchange which is in the process of producing draft model statutory provisions designed to overcome legal obstacles to the use of EDI. Furthermore, the European Commission is funding a number of studies into the use of EDI and may well, in due course, produce legislation. Such international provisions, when they find their way into national law, could simplify the contract terms necessary to give effect to EDI and obviate the problems arising under international transport conventions.

Some lawyers and inter-governmental organisations are making valuable contributions to the use of EDI by addressing the legal problems which it throws up. They are ignoring, however, a fundamental and continuing problem. The transport industry is spending millions of dollars on disputes that turn on the construction and application of the various different transport conventions.

While the industry is streamlining its communications through the use of EDI, many lawyers across the world are expending their energy in comparing the merits of different sea transport conventions. Such energy would be more usefully employed in the creation of a user-friendly legal structure for the transport industry. The abolition of the different transport conventions and their replacement by one convention that would govern all modes of transport, whether unimodal or multimodal, and which would expressly permit electronic documents, would be an ideal basis for the transport industry of the next century.

Such work would no doubt be complex and costly. The adoption of an entirely new convention would, of itself, give rise to disputes about its construction in the short term. In the long term, however, the benefits would far outweigh the short-term problems. Radical simplification of the legal infrastructure would be a fitting partner to the streamlining of the industry that results from the use of EDI.

Diana Faber 1994

The law and the box

There are three things which are striking in reviewing the past 25 years of the multimodal transport industry. One is the innovative nature of the industry over that time and before. The second is the way in which the type of issues which have had to be resolved by the Courts have changed and developed over this period. The third is the change in the balance between the sea leg and the land legs in the combined transport operation.

The type of innovation which has taken place on the technical side has not been to create a lot of different ways of doing things, but to try to find one common way which is efficient. This is best illustrated by the clear trend over a number of years towards standardisation in container design, in terminals, and in the design of equipment on the means of transport. This is all in aid of efficiency and the control of cost.

The drafting of documentation has not quite yet reached the same level of sophistication. This in turn has an adverse effect on efficiency in claims settlement and the cost of disputes. There are two aspects to this – macro and micro. The macro element is the structural problem of the different international conventions which apply to transport by sea, road, rail and air. In some parts of the world the international conventions may have no application, and local laws still apply. The most common question which arises from this is that, in order to establish the liability, it is necessary to prove where the loss or damage occurred. This is not always easy.

In an attempt at standardisation, UNCTAD promoted a convention (the United Nations Convention on International Multimodal Transport of Goods of 1980) to establish a common liability regime. But, possibly for reasons connected to the fact that this Convention was based on a Hamburg Rules liability regime, the Convention attracted little support. The UNCTAD/ICC Rules for Multimodal Transport Documents produced in 1992 have received more support (from forwarders if not from vessel owners). But they still operate a network liability regime which refers to applicable international conventions or mandatory national law.

At micro level, in the drafting of contractual documents, the forms of combined transport document now in circulation are a huge improvement on 25 years ago. A uniform approach in the substance of the documentation will always be the objective, but that might be too much to hope for. There is however, still room for simpler language and more logical structures to be used. This is one area where it cannot be said that consistency is the 'hobgoblin of little minds' – there are vitally important commercial reasons for it.

The imagination of the engineers, technicians and designers in the evolution of container technology has almost been exceeded by ordinary people. It is, perhaps, ordinary people who have been most inventive in adopting the container for their own uses, not least those wishing to avoid immigration formalities! Using a container as a form of human transport presents shipowners with huge problems of great financial significance as the shipowner, under many national laws, was obliged to pay the full repatriation costs of any immigrants – whether shipped in containers on deck or under deck!

Great efforts were made to try to develop devices which could detect human presence in containers, such as heat probes and carbon monoxide detectors. None, however, was found more effective than a policeman patrolling the container port who would bang on the side of the container and enquire 'Is everything alright in there?' More often than might be believed he received an answer 'Yes thanks!'

The speed of technological developments was matched by the development of container jargon or container language. I remember seeing a letter drafted for my approval addressed to a man who owned one lorry in Grimsby against whom a claim had been made for damage to the container or its contents. The letter began 'Dear Sir, we have considered the papers you sent to us and in our opinion you are clearly a CTO.' Imagine the scene at home in Grimsby when he opened this letter and said to his wife 'The lawyers tell me I am a CTO.' Neither of them would know whether to take it as a compliment or an insult.

A second remarkable feature of the industry has been in the development of the nature of the disputes which occur and which have gone to trial over the last 40 years or so. We have tried to take snapshots of the position at 1955, 1970 and today. Three quite distinct phases can be seen, although inevitably over 40 years there is some blurring at the edges.

The first phase, in the very early stages of the industry, does not seem to give rise to contractual issues at all – but rather to personal injury claims arising from container operations. The second phase, from the late 1960s to the early to mid-1970s, shows contractual issues coming before the Courts but the Courts at times failing to give effect to what the draftsmen of the contracts intended. In the third phase, over recent years, the Courts have generally taken a sophisticated approach to the construction of combined

transport documents and have been highly supportive of the intentions of the industry.

In the first phase, the reported cases concerning containers did not give much hope for the future development of the industry. They all concerned personal injury to stevedores. It was not so much what containers could do for you, as what they could do to you. What is fascinating about these cases is the reminder which they give of how the liner industry operated 40 or more years ago. In the first of these cases in 1952, a stevedore at Butlers Wharf engaged in unloading cases of fruit, (referred to in the judgment as 'containers') fell through a hole on the ceiling of the hold, which had been hidden by straw. The straw was being used to protect the fruit. The reefer industry has moved a long way since then.

A further three cases were reported during 1955. Again, they all concern personal injury. In one, a dock labourer had slipped from a container which had been loaded from a vessel at Tilbury Docks onto a railway truck. In the next, a stevedore had a finger crushed by a container which was being loaded into the hold of a vessel at Liverpool docks. In the third in this line of cases, a stevedore was struck by a bale of rabbit skins and fell against a container in a vessel at Irongate Wharf London. The judge described the container as 'a large container, such as one sees made for hoisting from a lorry and slinging on board ship... very much like a pantechnicon van...' An old fashioned description, but one which sounds more like the modern container.

In the second phase of contractual issues coming before the courts, the earliest decisions appear to have been in the United States – quite fittingly in view of the US being the origin of the modern container industry. These issues were surfacing at just about the time of establishment of the (Through Transport) Club in 1968. An example of the perhaps slow response of the courts to the commercial reality was the decision in 1969 of the US Court of Appeal in the *Hong Kong Producer*.

It was held that the carrier in that case had failed to establish that there was a custom in the shipping industry of carrying containerised cargo on deck – at least in the case of a general cargo ship – and that the carriage of containers on deck was an unreasonable deviation. The English High Court in Evens v Merzario in 1974 found that there was ample evidence to show that it was a feature of this new form of transportation to carry containers on deck. The courts said that it would be quite wrong to apply, to the form of contract being considered, the old law originally evolved in relation to

bill of lading contracts. In the *Mormaclynx* case the US District Court decided in 1970 (subsequently upheld by the US Court of Appeal) that a clause in the bill of lading which applied package limitations to the container (rather than the number of packages in it) was invalid. This is, of course, now widely accepted but indicates a tendency (where there was certainly room for two views) to find in favour of cargo interests. It must have been clear even at this early point in the history of the TT Club that many of the traditional notions relevant to the carriage of goods by sea would be under challenge.

There have also been many interesting cases where containers have been of peripheral relevance. On 19th September 1970 the vessel *Transoregon* docked in Southampton, carrying two containers holding household effects for delivery to a Mr Brokaw. On docking, the United States Government claimed possession of two containers, in order to enforce a claim for unpaid taxes allegedly due from Mr Brokaw's parents-in-law. The US Government's claim was rejected, on the grounds that the English Courts will not help enforce the tax laws of another country. It is difficult to think of any basis on which anyone would wish to be exposed to liability for the taxes of the shipper even, or, especially, if related by marriage.

Containers still turn up in the strangest of places. They can (allegedly) do quite devastating damage. The vessel *Marel*, a 17,000 DWT bulk carrier, sank in the Mediterranean Sea in 1985. The cause of sinking was unclear, but the owners' case was that the vessel must have hit a floating or submerged container, which had fallen from some other ship somewhere else and drifted into her path. This raises the interesting, and not totally fanciful question of possible rights of recourse against the owners of the container or the carrying vessel – if this had actually happened. The Court in the *Marel* case however, had no difficulty in stating that it was 'so improbable as to be virtually impossible' that the sinking had been caused by a collision with a container. Expert evidence was produced to say that the chances of the vessel having been ruptured by a floating container were 35 thousand million to one against.

The third phase of development in the cases which have been reported is a whole-hearted acceptance in a number of countries of the carriage of containers on deck, the shippers' responsibility for stowage, and the effectiveness of the Himalaya clause and the circular indemnity clause. This is of course not the position worldwide, and there are regrettably still some legal systems which, for example, do not give proper effect to a shippers load, stow and count notion on a bill of lading. At the time of writing, the law reports are full of cases arising out of the carriage of containers dealing with complex issues of bailment, the Himalaya clause, perils of the sea, insurance and the CMR.

It is however, still surprising how long it can take for some old chestnuts to be determined. An example is the decision of the Privy Council in the KH Enterprise case, on appeal from the Courts of Hong Kong. That case raised the question of whether the terms of a bill of lading issued by an ocean carrier would apply in between the owner of a feeder vessel and the owner of the goods. In an opinion which is both readable and commercially realistic, it was held that the terms of a bill of lading issued by the ocean carrier to subcontract, were also applicable as between the feeder vessel owner and the owners of the goods. The concept of bailment and subbailment were very elegantly utilised to avoid the obstacle of lack of privity contract.

The third striking feature, especially to lawyers from a marine background, is how much the real issues in the industry have moved from the ocean leg to the land legs. This is partly a consequence of the increase in door-to-door movements: the greater amount of container handling which takes place on land compared to sea; the high standards of operation and safety on the ocean legs; and the greater risks of theft or damage on land. Are lawyers in the combined transport industry land rats or water rats?

Mark Morrison and David Taylor 1995

Computers in liner shipping

My introduction to computers was in 1965 in the package holiday business. At that time, the commercial use of computers was being applied, almost exclusively, to automating clerical tasks. The business need to use computers then, which many of us tend to forget these days, was born out of such things as Organisation and Methods studies which was then a fashionable management technique alongside operational research.

At about the same time that the holiday industry was reshaping its structure, the freight and shipping industry was beginning to set in motion the most significant changes since Victorian times and, of course, the computer industry was realising the immense potential for the commercial use of computers in organisations.

A target that was much strived for in the 1960s was the ability to turn a ship around at a port in less than 48 hours versus the standard at that time which was generally measured in weeks. Administration and the production of documentation was time consuming and the target here was to process and produce documents in a day - a high ambition. A complete change was needed in business practice and infrastructure. Ships needed to be designed to carry containers, ports needed to have the capability of loading, unloading and handling containers, roads needed to be able to handle container traffic and so on. When you couple all of these things with the use of computers you get the feel for the quantum leap that was made in that wonderful decade. Most of the companies that were formed were breaking new ground and were pioneers in containerisation. At Overseas Containers Ltd we were building systems to handle documentation for exports and imports and the management and control of containers. Many of the ideas that went into building these systems were based on conventional wisdom but they were also pioneering.

One of the aspects that I remember well was the production of computerised ship's manifests, bills of lading and invoices. While the production of a ship's manifest conformed in many ways to the contents of a hard copy of a manifest document carried by the Master of a conventional ship, the difference here was in holding more information on the land side activities and technically holding more information in a serial and numerical form. The challenge was in having this computerised data in a form that could be read into another computer at the discharge end of a voyage. To describe in detail the fun we had with defining and agreeing standards for data and data exchange is beyond this short article to contain. We were also breaking new ground in exchanging data by magnetic tape (many of us started this process by exchanging paper tapes... quite a few were mutilated in the post!). Data exchange by magnetic media gave us our first taste of inter-working between computers, systems integration and EDI!

The documentation systems had to produce computerised bills of lading and invoices. The proud claim being made by liner shipping companies and their agents was that they could produce bills of lading and invoices within 24 hours of accepting a booking for cargo. I recall, as one of those 'pioneering' programmers, being assembled to stand by a very large 'blue' printer which was going to produce the world's first computerised bill of lading and invoice. Standing around this printer were many dignitaries and, of course, the press. Right on cue the printer sprang to life and out came a computerised bill and invoice. Loads of photographs, speeches and applause. I do know, however, that the programme that was meant to have done this had failed the previous day. It had the proverbial 'bug' and I, with a couple of colleagues, had to quickly write a simple programme to transfer characters representing bills of lading information punched on a card directly onto a printer!

I also found out, sometime later on, that where we were allegedly producing the world's first computerised bill, so were the Americans, the Europeans and the Japanese and, of course, 600 yards down the road from the company I worked for, its British competitors were doing the same thing. I wonder who really did produce the world's first computerised bill of lading?

One of the challenges that had to be faced was in the management and control of the fleet of containers both internationally and locally. Unlike conventional inventory management you had to include the way in which cargo would be moved in containers and the status of a container at any time (e.g. was it empty? was it full? was it damaged?). The real test, however, was in trying to computerise a set of activities which were largely conceptual and very unstructured, as at that time no one quite knew, in practice, how to effectively control the logistics of containers in transport and deal with imbalances. Against this background we did, however, build fledgling computer systems and they worked after a fashion.

We had quaint innovations when data was not available like 'ghosting' movements and 'assumed' the changes in status of a container. Some of these clever little innovations had to be introduced to compensate for the unreliability of capturing data when events occurred. Data capture was fundamentally important in timeliness and quality – and it still is! We have many of these same problems today.

Very soon these first systems designed for batch processing were being copied and installed within the organisations of the liner shipping companies and their agents across their regions, often in distant parts of the world. These replicated systems were essential at each end of the trade or on a port-to-port basis. What linked them was the exchange of manifest data using magnetic tapes, which were airfreighted between the sites.

As we moved into the 1970s and some time after the introduction of the commercial documentation and operational systems, we were caught up in the late arrival of financial and management accounting systems. The delay

created a legacy of data and financial control problems and manifested itself more pointedly as an inability to control the business more effectively. Problems in this area are still being addressed today.

Thanks to the ensuing politics of centralisation and decentralisation, most organisations turned to give autonomy to the regions within their organisation and this led to many of the earlier systems being replaced by local systems, resulting in federal-type organisational structures – or fiefdoms! Somehow, the real understanding of the integrated nature of cargo shipping activities using containers seems to have escaped many of the companies who pioneered containerisation. There were, of course, one or two exceptions, which tended to go the other way and became too highly centralised, creating unwieldy bureaucracies.

Next came the explosion of desktop personal computing, coupled with the legacy of diverse and fragmented mainstream systems across organisations (worldwide). Liner shipping companies were led towards a technical strategy for protecting their accumulative investments in systems while at the same time modernising and adding new functions and implementing co-existence and co-operative methods. These methods were to enable information systems running on mainframe (central) computing, mid-range systems and PC systems (personal) to turn into a pragmatic technical arrangement recognising data needs of applications that supported business processes and used computer capacity as a commodity linked by networks that allowed information to be exchanged and processed where needed.

The strategy for the 1990s to provide information systems has been driven by Business Process Re-engineering and has for example moved application development out of central, highly-structured computing approaches – which are parochial and fixated in business and hardware solutions – into collaborative business solutions consistent with business behaviour and scoped throughout the enterprise using the capabilities of PCs and desktop workstations. Business users are also continuously looking for effective and quick solutions to business problems; continuous improvement to systems is a key need. They expect to be able to access all the data, application and computing services within their organisation irrespective of where it is – they are seeking a corporate enterprise utility.

The way to successfully implement 'user-friendly' and effective enterprise-wide systems is to understand business function and practice, behaviour and culture, and when and how data should he delivered, and on which platforms the data, function, and horsepower should reside on the network. Rapid response to business changes and effective work flow are the key. The 'Open Systems' arrangement defined by liner shipping companies for 'hub' processing provides the scope to achieve correct balance and capability. The liner shipping companies' strategy for 'hubs' or 'enterprise server platforms' will be critical in enabling them to 'system manage' applications and achieve the benefits of personal, work-group and company-wide information system services and resources.

The 'hub' or Client Server approach will not necessarily be via one or two centralised super-servers but a number of 'hub' server platforms with a collection of services that will be distributed across a variety of hardware to optimise price/performance, availability, back-up and functional specification. The objective is flexibility and choice. This will work alongside 'core' global systems processes like electronic mail routings, data repositories and print sharing, etc.

Liner shipping companies' application systems will rest on a certain architecture of machines and software. They will be inherently distributable and have multiple inter-operability. The servers will be expected to have the capability of transparently providing full services to any authorised business users and customers. To all the users the enterprise utility will be seen as a single system. This is the 'utility concept.'

Business process engineering coupled with Information Technology (computing and telecommunications) is playing a vital role in supporting the successful growing of businesses in general and in achieving greater internal efficiencies and external competitiveness. Future systems will be designed to meet the individual professional needs of the workers in companies. They will include graphics, multi media and executive information systems.

AM Ratnayake 1995

Multimodal India – a victim of faulty legislation?

Containerisation came to India in the early eighties and transformed the transportation scene. Goods did not have to be brought to the ports in breakbulk form to be loaded on board conventional ships. They could be

stuffed into containers which were then sent to the ports for shipment.

Inevitably inland container depots sprang up and goods were stuffed at these ICDs into containers, which were then transported by rail to the gateway ports. Multimodal transport in India in its modern sense was born.

But what about documentation and responsibilities during the carriage of the cargoes? Shippers who handed over their cargoes to shipping lines at ICDs naturally expected to get a negotiable document which they could use to get paid under letters of credit opened in their favour by their buyers abroad. The ocean bill of lading, the old workhorse of maritime trade, could not serve the purpose, as it covered port-to-port carriage. The land segment of the carriage had to be integrated into the transport chain. A Combined Transport Document (CTD) was required.

But then there was a problem. Our banking authorities were quick to remind us that a CTD was not a valid document under the Sale of Goods Act and hence the banks would not negotiate such a document. The need for a CTD was felt abroad much earlier and the International Chamber of Commerce had brought out rules for precisely such a document which the trade, the banks and the shipping lines in the developed maritime countries had successfully adopted.

Major shipping lines serving India adopted the ICC Format of the CTD which they issued to Indian shippers routing their cargoes through Inland Container Depots. Trade picked up and the ICDs began to hum with activity.

Our banking authorities and legal pundits in New Delhi were naturally keen to get into the act and were loathe to be left out. So after a lot of confabulations with the trade, they produced two versions of what was meant to be their own brand of a CTD – the FEDAI document. It was a strange, hybrid document based on the novel but totally unworkable idea that the document would be issued to the shippers at the ICD and they would then exchange it at the port of shipment with an ocean bill of lading! Inevitably, it was a non-starter and mercifully died a natural death, unsung and unlamented.

In the meantime, India's export trade and multimodal transport were not standing still. Major shipping lines, assured in the knowledge that their CTD had worldwide acceptance, continued to use it in the Indian trade also. Not only the shipping lines but also the exporters, their buyers abroad and the banks were not bothered about the absence of any mention of CTD in the Sale of Goods Act, the bogey which was earlier raised by the authorities themselves. Everything went smoothly. Reliable and efficient services were offered by the shipping lines, and shippers were happy with sailings available to every destination at very competitive rates of freight. Their cargoes were being carried under a single document with responsibility for ocean carriage according to the international convention ratified by India. For land transportation the liability was based on the applicable national legislation.

We had not reckoned with the uncontrollable itch of our worthy lawgivers to produce another piece of legislation. In October 1992, in New Delhi's eyes there was apparently a 'crisis situation' and as Parliament was not in session, an ordinance was promulgated called Multimodal Transport of Goods (MTOG) Ordinance. In April 1993 it became an Act of Parliament.

The Statement of Objects and Reasons for the Act boldly asserted that in the context of Government's liberalisation policies, 'it became necessary to immediately regulate multimodal transportation of goods by law with a view to reducing and eliminating interruption in the continuous movement of goods from their origin to the ultimate destination, and also reducing cost and delays and improving the quality of transport services.' What a pretentious piece of drafting! Unfortunately, the Act has not solved any problem because the Act itself is the problem. Let us see why. Multimodal transport necessarily required multimodal transport operators (MTOs) for its functioning. The first to become MTOs were the shipping lines themselves, who started issuing their CTDs at inland container depots. To rationalise sailings they started exchanging container slots on one another's ships in a consortium or some other joint service arrangement. The next stage was the emergence of foreign non-vessel owning carriers (NVOCs). They were not shipowners in their own right. They canvassed cargoes, stuffed containers, issued their own bills of lading or CTDs and offered the containers for carriage to regular shipping lines.

In the meantime, our own freight forwarders were raring to go but were precluded from doing so. Shippers could not negotiate documents issued by them as banks would not honour such documents. After a lot of discussion and prodding, the authorities finally agreed to recognise these freight forwarders as MTOs, subject to their complying with certain conditions, e.g. maximum turnover and agents abroad. But then, if Indian freight forwarders were to be allowed to operate subject to their being approved and registered, the regular shipping lines also had to be brought within the net of regulation. This is the genesis of Chapter 2 of the MTOG Act. But by some inept drafting the authorities tied themselves up in knots. The Act stipulated that the turnover of foreign shipping lines had to be certified by an Indian Chartered Accountant. This self-inflicted hurdle continues to bedevil the authorities. The shipping lines naturally cannot produce the certificates and the authorities cannot stop the shipping lines from functioning lest most of India's containerised trade by sea comes to a virtual standstill.

The farcical result is for all to see. Indian freight forwarders with a turnover of around US\$1,700,000 have been registered as MTOs. But applications made by world famous shipping lines with a wide international network of agents and a turnover running into many millions of dollars are gathering dust in DG Shipping's office. However there is a glimmer of hope. Three or four such lines have been registered as MTOs and hopefully the authorities will also condescend to register the others.

To conclude, it is difficult to believe that the observations made above can be totally unknown to those who draft and pass such legislation. One therefore wonders why such half-baked legislation sees the light of day so often. Is it in our genes as Indians? I am reminded of an old joke which bears repetition. An Englishman, a German, a Frenchman and an Indian were asked to write about the elephant. The Frenchman wrote out an essay on the sex habits of the animal. The German produced ten learned volumes on the evolution of the elephant from prehistoric times going back to the mastodon and the mammoth. The Englishman promptly wrote out a novel entitled Lord Jim, Gentleman of the Jungle. Finally the Indian produced 'Elephants: Regulation of Employment Act.' Need we say more!

RS Cooper 1995





THE WAY WE LIVE NOW

The Safmarine container project

Stray containers have long had a habit of turning up in the strangest places, often hastily repainted and turned into makeshift offices, clubhouse buildings or the like. But it has taken liner shipping company Safmarine of South Africa to elevate this often questionable practice into an above-board charitable programme, donating large numbers of converted boxes to diverse social projects throughout the country.

The changing political face of South Africa presented both the need and the opportunity for this kind of development project. One legacy of the apartheid systems is that millions of less privileged South Africans now find themselves living in townships or 'informal suburbs' without basic housing and community support services. Yet in 'New South Africa' these people's aspirations run great: they want improvements in areas like education and health care, and they want them now.

Possessing what it calls a 'First World' transport infrastructure to serve a country of 'Third World' need, Safmarine first hit on the idea of its container project back in the early 1990s after having invested some \$40 million in new equipment to replace many of its older units. Realising that most of these 10 to 12 year old boxes would remain structurally sound for many years after retirement from 'active service' the company decided to forego the revenue of second-hand sales and instead donate them to the community. Some 2,500 containers were earmarked for this purpose. Not wanting to 'make assumptions or force ideas', as the company puts it, Safmarine wisely commissioned a leading market research company to carry out a national survey to test the acceptability of the old containers in less privileged communities. Some 1,000 respondents - comprising black home-owners, tenants and informal residents throughout Southern Africa were interviewed. The results showed that, while a small minority felt containers should be used for basic housing purposes, the majority would prefer to see the containers used in a community support role - e.g. as a

clinic, classroom, nursery, library, resource centre or shop – on the grounds this would benefit greater numbers of people and create jobs.

Launching the programme in earnest, the company was inundated with requests for containers and had to sift applications carefully. A wide range of innovative uses was proposed, and Safmarine soon discovered that the international standard 20 foot box (always called a 6m box in South Africa), with double doors at one end, was a surprisingly versatile animal. At the simplest end of the scale, the container can be used exactly as it is, after painting and checking that it is clean and watertight. A small business such as a garage, telephone centre or retail shop can then be operated there during the day – and the premises securely fastened at night.

In one instance, a batch of containers was installed at the large open-air trading post in Kliptown, near Soweto, to form a veritable shopping mall, meaning vendors were no longer plagued by dust and rain. and could leave their goods in situ at the end of each day's trading rather than having to bundle them up and carry them home by foot or public transport.

Then there are relatively simple conversions by the provision of windows, doors and hatches. After relatively trifling outlay, lone units have been able to perform such valuable roles as a tuberculosis clinic, treating over 50 patients daily, and a soup kitchen for a community's unemployed.

More complex structures can be created by joining two or more containers and the removal of side panels to provide large internal spaces. This is particularly useful for providing classrooms and other facilities for pre, primary and secondary schools – an area on which Safmarine has placed special focus. Boxes make excellent classrooms and can be erected in a quick, efficient and cost-effective manner. Outside Durban, in what is said to be one of the fastest growing 'informal developments' in the world. seventeen boxes have been pressed into service to form a single school.

Another innovative application for twin boxes, arranged in 'doubledecker' format, has been as 24-hour first-aid container pharmacy units, where a first-aider lives 'upstairs' and dispenses emergency medicines from the pharmacy downstairs. The idea came from the South African Association for the Relief of Medical Ailments.

Finally, at the upper end of the engineering spectrum, comes the use of containers as an integral part of far larger buildings: e.g. as the instant corner walls and roof support, where otherwise slower, and more expensive, bricks and mortar would have to be used, for example in the construction of a larger school hall, clinic complex or multi-purpose community hall.

Depending on the amount of work needed, transformation of a container can cost up to \$3,000 per unit, a mere fraction of conventional structures. Safmarine says that by September 1994 it had allocated more than 2,000 containers to some 400 diverse projects, representing an effective contribution to the economy 'in excess of \$6 million.' The programme is nationwide, but by virtue of the company's location in Cape Town, has so far concerned mostly projects in the Western Cape.

Aware that it does not have the resources to manage or supervise any of the projects, Safmarine works closely with the established community representatives and agencies, as well as Government departments and the various political groupings – all of which clearly does the company no harm in adjusting to the new political realities of South Africa.

Besides education and health care, environmental awareness is also on the agenda in these rapidly growing urban areas. Containers are being used to teach environmentally friendly horticultural techniques, as well as collection points for glass, tin cans and other recyclable materials. Job and wealth creation is the fourth cornerstone of the programme, and here perhaps the most commercially oriented use of boxes is as 'hawker banks' to accompany the containerised malls that are springing up. Hawking – South Africa's word for informal street selling – is one of the fastest growing enterprises in the country and Lawrence Mavundla, President of the African Council for Hawkers and Informal Business, approached Safmarine with a proposal for how containers could be used to encourage further growth of this sector.

Under Mavundla's scheme, boxes would he transformed into secure, mobile banks, which each morning would advance cash loans to the hawkers or informal traders, enabling them to buy their merchandise wholesale. The loans would then be returned at the end of the day, together with a small amount of interest, and the traders pocket the remaining profit. Jobs would thus be created, not only for hawkers, but also for workers at the banks, paid for by the interest accrued. The plan is to have 500 of these container banks spread throughout South Africa by mid 1995, creating a total (for Safinarine) of some 9,500.

Just one cloud now hangs over the horizon of the Safmarine Container Project: the company is fast running out of containers. Thus it has launched an appeal for donations of used boxes – especially those with insulation – by shipping and freight companies worldwide. Boxes will be collected anywhere in the world and shipped free of charge to South Africa. At the time of writing, a leading European line had just become the first – hopefully of many – to take up the challenge.

Bob Jacques Seatrade Review (1995)

La grande bataille

Boxes deliberately left behind by ships leaving West African ports in the mid-1980s were said to have lit the fuse of a slow burning rivalry between two of the towering figures in modern French shipping: Vincent Bollore and Tristan Vieljeux.

The rivalry was to end – or so it seemed at the time – four years later in a spectacular coup played out in the high-rise boardrooms of Paris's ultramodern business district, La Defense. It was then that Bollore – a rising young industrialist and financier who owned the SCAC freight forwarding and transport group, but was a relative newcomer to shipping, finally succeeded in ousting his veteran opponent from 125 years of Vieljeux/Delmas family control of France's biggest private shipowner. Bollore promptly merged SCAC and Delmas Vieljeux into one entity, SDV. Some two years later he was elected chairman of the French shipowners' association.

The French press hailed Bollore's 1991 victory as that of 'le petit prince du cash-flow' (he had been elected 'French businessman of the year' in 1989) over the country's last remaining 'seigneur de la mer' and waxed lyrical over the symbolic close of a shipping era. The days of concluding deals with a handshake had given way to the hour of the leveraged buyout, ran the editorials.

But behind the leading protagonists' contrasting personalities and 'style' – an essential ingredient in French business – the real story of how control of blue chip Delmas changed hands was a 'Dallas' type saga of internal divisions within 'the family', comprising Delmas and Vieljeux clans. When Bollore eventually acceded to the boardroom of the Delmas HQ which by a neat stroke of irony is located next door to SCAC – the blue blood of two of France's grand families lay spilled on the carpet.

'It was a perfect revolution to have lived through, brilliantly planned and executed', conceded one Delmas source loyal to the ancient regime. 'Bollore has a notion of time. Over the years he has worked on each member of the family in turn, exploiting their individual weaknesses.' As paternalistic leaders of trade with francophone West Africa – France's 'backyard' – the interrelated Delmas and Vieljeux families had traced a glittering course down the years, holding political office in their native La Rochelle region, marrying into royalty and mixing freely with heads of state of the day. During the Second World War they played an inspirational role in what is said to have been the 'real' French resistance, and thereafter became a pillar of Gaullist post-war colonial policy. The families' ancestry traces back to the Huguenots of Dard, who rather than fleeing the country to escape religious persecution instead retreated to the barren and isolated central region. Today their descendants form the so-called Haute Societe Protestante or HSP – a more exclusive French equivalent of American WASP – whose members bear the distinctive patrician hallmark.

Vincent Bollore represents an absolute contrast to Vieljeux, coming as he does from a Catholic family of small industrialists who ran a factory producing cigarette papers, bibles and carbon copies in the bluff, northerly region of Bretagne. In interview he professes himself intensely proud to be a Breton, people renowned as both hard-working and hardheaded. His hobby is collecting classic comic books – a far cry from Tristan Vieljeux's twin passions of ocean-going yachting and opera!

A self-confessed follower of Japanese management techniques, Bollore took over the loss-making family business in 1981 and completely turned it around, building a new plant and retraining his workforce to make dielectric films for capacitors – basic components in the electrical and electronic industries. By the time of the Delmas takeover Bollore Technologies had become a world leader in this field with a 35 per cent market share and turnover approaching \$3 billion.

The Vieljeux-Bollore enmity appears to date from 1986, when the younger man had expanded into cigarette production in West Africa and wanted to control the next link in the transport chain. He outbid Vieljeux for control of SCAC (Societe Commerciale d'Affretement et de Combustibles), a business also focused on West Africa and a major client of the Delmas shipping line.

With Vieljeux keen to expand into land operations, a Delmas-SCAC fusion also made eminent commercial sense, however. So a few months later the shipowner known as 'l'African' visited the younger man to ask if he had tired of the experiment of doing business in the Dark Continent and would

like to sell on the company he had bought for FFr250m. Bollore declined, and with this act of lese-majeste, so the story goes, a cold war set in. Delmas ships would mysteriously sail with those SCAC containers still left on the quay, and Bollore went on record as claiming his company was charged 20 per cent over market rate.

Thus began Bollore's long march on Delmas. His target was Compagnie Financiere Delmas Vieljeux, the holding company which owned 75 per cent of the shipping arm. Initially he sought to negotiate, and around 1988 is reported to have offered Delmas a 51 per cent stake in SCAC in return for a 20 per cent holding in CFDV, enough to give him a seat on the board. In parallel, he started building up his own maritime portfolio, buying small French shipowner La Navale Caennaise, and a 20 per cent stake in Joint Service Africa line alongside Hoegh (60 per cent) and Bilspedition (20 per cent).

When his offer was refused by Vieljeux, who would only countenance him joining the less important Delmas board, full-scale hostilities were declared. Bollore deftly snaffled up the five per cent of Delmas shares held by his new-found ally, the Rivaud Group, with whom he had just completed a cross-shareholding agreement. Alert to mop up any further small shareholdings, he then turned his attention to 'the family.' First members to defect were Francine and Maurice Delmas, who in 1988 announced that thereafter they would be acting in unison with Bollore. Francine's husband, Claudio Palazzola, had shortly beforehand been passed over in favour of 'outsider' Alain Wils for the job of Delmas managing director. Francine and her brother may have acted out of 'revenge', speculate insiders, no doubt feeling that Vieljeux was author of the initial betrayal.

Failure to promote family members led to another key defection. Distant relative and shareholder Eddie Roulet, a popular middle-level executive with Delmas, went in to see Vieljeux to discuss his annual pay review and suggested an innocuous promotion to sous-directeur, the most junior rank entitled to a company car. 'Over my dead body', the patriarch is said to have stormed. Eddie promptly sold out his shares to Bollore and bought himself two Ferraris with the proceeds.

The princess Claude Ruspoli, nee Claude Delmas, wife of a Venetian prince, also decided to sell in 1990 – 'perhaps because the palace roof was leaking', quipped a Delmas aide at the time. A pre-emption clause meant their shares were split between Vieljeux and Bollore ally Francine Delmas.

By Spring 1991, Bollore was on the threshold of seizing power as large Delmas shareholder the AXA insurance group, chaired by a personal friend of Bollore, had declared itself 'neutral' in the struggle, leaving the two camps evenly balanced. A final family defection tipped the scales.

Enter Jacques Vieljeux, cousin of Tristan, and his son Eric, villains of the piece in the old guard's demonology. Between them they held a two per cent shareholding outright plus a further nine per cent stake in a family holding which ironically had been erected as a defence mechanism against Bollore and which Jacques chaired. They also belonged to the Vieljeux family itself – albeit a Catholic branch – rather than the Delmas' and were thus perceived to be of the inner sanctum.

Why the cousins decided to switch allegiance and announced they would vote with Bollore/SCAC remains a subject for speculation. Some say Jacques was an avid follower of daily fluctuations in the CFDV share price, which according to analysis were overvalued by as much as 30 per cent and effectively controlled by Bollore's attentions. As it turned out, they did not sell and although both were to take up seats on the new CFDV board, they were passed over for chairman in favour of another 'outsider', Dominique de la Martiniere.

Faced with this final defection, Tristan knew it was the beginning of the end. He would almost certainly have lost the psychologically crucial vote at the 6th June annual general meeting on whether Bollore should be given a seat on the CFDV board – the move he had always opposed. Instead, he finally threw in his hand on 31st May. Rather than face a protracted waning of his influence in favour of his rival's, he sold the 17 per cent stake in CFDV that he and his family held for a premium market rate, of FFr4,000 per share, conditional on his immediate resignation of chairman of both CFDV and Delmas.

That evening Tristan Vieljeux sent an emotional farewell message to his employees, in which he spoke of his 'regrets and bitterness, because I didn't think I would end my career in this fashion.' Of the two messages he wanted to impart, one was of gratitude to his employees, the other one an apportioning of blame. 'If the battle for the independence of this company has been lost, I hold it more against those who have abandoned us along the way than against M. Bollore, who I now wish to succeed at the head of our group...'

Within days Vieljeux, his brother Patrick, nephews Stephan Vieljeux and Frederic Dadvisard, and several longtime supporters including former Gaullist prime minister Maurice Couve de Murville had all departed the ex-family company. Besides requesting an investigation by the French Bourse authorities into certain aspects of the takeover, Vieljeux maintained a dignified silence over the whole affair. It was widely assumed he would sail off into the wide blue yonder to enjoy a well-earned retirement in the sun.

For Bollore, not all has been plain sailing since. He moved quickly to merge the two companies into SDV and bought out former JSA partners Hoegh and Bilspedition, predicting huge savings on rationalised African services. But his ambitions were soon thwarted as the EC slapped a heavy fine on Delmas for abuse of its dominant position on West African trades (prior to takeover). Bollore succeeded in negotiating the fine down but only on condition he scaled back Delmas' African services.

Global recession meanwhile deepened, and SDV began reporting a string of huge losses. Wils had been fired over the EC affair, and Bollore's lieutenant at SCAC, Jean-Guy le Floch, was elevated to run the shipping operations on a day-to-day basis. But with results still disappointing, outside expertise had to be brought in to run the company and Bollore himself even stepped down as chief executive. After swingeing rationalisation and ship sales, SDV turned the corner and reported a profit for 1994. Bollore resumed control in January 1995. On a personal note, Bollore has proved himself a surprisingly effective chairman of the national shipowners association, staunchly supporting the French flag and French seafarers' rights, and winning tax concessions from the government that few thought possible.

And what of Tristan Vieljeux in the four years since he lost control of the family company? Far from settling for a peaceful retirement, he immediately bought into CMA (Compagnie Marseilles d'Affretement) – with a rumoured three per cent initial stake. He now has a permanent office in the company's waterfront headquarters in Marseilles – which coincidentally is also the centre of French yachting – from where he advises the Saade family on running the company's liner operations. Previously trading mainly to the East Med and Red Sea/Indian Ocean areas, CMA has embarked on massive, Far East-based expansion during the past year, increasing volumes by more than 50 per cent to 350,000 TEU. By late 1994, it had overtaken both CGM and Delmas to become France's largest container shipping line.

Bob Jacques 1995

Time and turnaround

On the seventh floor of the Swire Building facing Hong Kong's harbour and its shipping sits a former acquaintance, Tim Bridgeman, of John Swire's China Navigation Company. I had met him two years earlier after sailing in one of the company's ships – the *Hupeh*.

As I knew, Tim said Swires had no passenger vessels going my way. Most ships of any kind crossed the Pacific from right to left, east to west, far more frequently than from left to right, which was my direction. But still... wait... yes, Swires had the *Chengtu*, a container ship. She would leave in a few days for Papua New Guinea and the Solomons.

To be precise, she would call at the little ports of Wewak, Madang and Lae on the north-east coast of Papua New Guinea, then Rabaul in New Britain, then Kieta on Bougainville Island. She would go on to Honiara, the capital and the main port of the Solomons, and return. Nearly two weeks outward voyage, all told. Of course, I needn't go all the way.

There was no doubt about it. The *Chengtu* was what I needed – as far as Rabaul, anyway. After Rabaul, I could take my chance. 'Good idea,' Bridgeman said. 'Nice place, Rabaul. Volcanoes.' David Walker had written very clearly on a piece of office paper: '*Chengtu* Buoy A8. 1700 hours, 1900 hours, 2300 hours, Blake Pier.' This meant that the walla-walla, or sampan, that effected a water taxi service from the shore to the ship, set out at those hours from that pier, almost opposite Swire House.

But when I walked in the rain to the pier, a little before 1900 hours, I found a confusion of sampans bobbing and rolling in the darkness. Blake Pier is quite long and has a leg to it like a letter L. Sampans came and went from a number of waterlogged steps, where huddles of seamen of various nationalities waited to be taken off to ships in the harbour. A wind blew; it was raining hard. Where was the walla-walla for the *Chengtu*?

By 1930 I had decided that it wasn't coming or that I had misheard some instruction from David Walker. None of the Chinese whose unsmiling heads poked out of the office kiosks at the entrance to the pier knew anything about the *Chengtu*. So I searched around and found an old man and a boy on a sampan that danced alongside some slippery stone steps, bargained with them for a minute or two, agreed to pay 30 Hong Kong dollars, and at last we swayed away in a roaring cloud of oil fumes across the choppy waters of the harbour.

Buoy A8: Chengtu was there, only partly visible, her foredeck and the

forepart of her accommodation and bridge wings illuminated by the arc lamps on her derricks, the rest of her in shadow. A modest-sized container ship with pleasant lines, she lay in the rain, nuzzled by barges like a sow with piglets. The walla-walla rose and fell at the bottom step of a steep gangway slippery with rain, and I wondered how I could lug my metal suitcase up there. Luckily, a Filipino seaman appeared almost at once, peering over the rail, calling '0k-aa-ee'! A dark, stocky figure in a lumberjack's plaid shirt descended the gangway, grabbed the case as if it were a matchbox and shouldered it up to the deck. I tossed some money to the old boatman and followed the Filipino up the gangway with my zipbag. The walla-walla disappeared in sheets of rain.

Ships at rest in harbour are cold, indifferent things. They can seem positively hostile to strangers. The first thing to do is to find the chief officer or the captain. You need to explain your presence. Probably you have to sign a waiver, exempting the shipping company from any responsibility should you fall down a companionway and break your neck. A cabin is a refuge to dump your bags in. Once you have a bunk, you somehow feel safe. Someone must show you to it, whatever it is – the owner's cabin, a pilot's cabin, or a cubbyhole somewhere to accommodate a supernumerary officer...

When I introduced myself to the second officer he winced away, saying. 'Excuse me,' not offering his hand to shake but showing me instead a white lump of bandage over the tip of his middle finger. 'Caught it between a container and the spreader,' he explained, 'on the *Chengtu's* is last voyage.' A spreader is the rectangular metal frame that clamps onto container tops and lifts or lowers them. "Nail gone? Nail?' He held it up with a resentful expression. 'The whole tip's bloody gone.'

He seemed remarkably unconcerned. He told me that the first officer had broken an arm and one or two ribs and damaged his left leg in a fall down a hold on the same voyage. 'I thought he was a goner.'

The second officer's name was Ken Hindmarsh, a young Geordie with rust coloured shining hair and beard and appropriately pallid skin. The *Chengtu* carried eleven officers and thirteen crew. At the first midday meal I met the chief engineer, Tony Darby, a grey-headed man with a belly like a cheerful Buddha, grey moustache and a Yorkshire accent, who, like Captain Ralph Kennet of the *Hupeh*, came from Don-caster, which is how he pronounced it.

As the Filipino steward carried in steaks, the conversation turned to what I came to recognise as a familiar topic at sea – the dehumanizing of

life at sea by containers, computerization, cost efficiency. Ships don't linger in port as they used to, shore leave is minimal, perhaps merely time for a beer. Schedules are calculated in hours, not days. 'No, sea life is not what it used to be,' said Tony. He shook his head. In the old days, too, the senior officers had their own stewards, and ships had crews of sixty men, not twelve.

'You could join the Merchant Navy and see the world once,' Jim Bird said. He poured a liberal dollop of salad cream over his steak. 'Salad cream on steak! Christ Almighty!' Gomersall cried in mock surprise. 'What an abominable taste!' 'Do you mind?' Bird said smoothly, and went on: 'Now a ship can be into a port in the morning and out again in the evening. All sorts of exotic-sounding ports and never a chance to see them. That's why young men don't want to join as they used to. Join the Navy and what do you see? You see the sea.' He poured more salad cream. 'We're bloody tram drivers, that's what we are.'

'You'll be in bloody hospital if you go on eating like that,' Gomersall said, winking at me. I mentioned the second officer's mutilated middle finger. 'Caught by the container,' said Gomersall. 'It came off in his glove. The mate – not this one – , (He flicked a thumb at Bird, who smiled and said 'Oh, thanks.') 'brought it up to him still in the glove, with ceremony like, as if he were serving him a perfectly cooked boiled egg, and said 'Your finger, I believe.'

Darby broke in, with relish, 'Down in Australia the other day they were moving containers in a hold with a fork-lift truck, and they didn't see a young cadet between the side of the hold and the container.' He brandished the ketchup bottle. 'A nice lad. It crushed him. Cr-oo-shed im.' Clog-glogglog – the ketchup slopped thickly like blood onto his plate. 'They heard the screams, but it was too late!'

Across the table the *Chengtu's* second engineer, a young, dark, birdlike Sri Lankan called Rohan, winced and his Adam's apple yo-yo'd rapidly up and down. He glanced at the scarlet pool of ketchup on Darby's plate, gulped 'Excuse me,' pushed back his chair and left.

Gavin Young

Slow Boats Home (1985)
Peninsula Bay

Alongside berth 205 in Southampton's container port sits a ship of a size similar to the *Queen Mary*: she is 900 feet long, 100 feet wide and when fully loaded she draws forty feet. She is not, however, a particularly pretty sight, with a huge elongated bulb where the bow enters `the water, an ugly squared-off flaring above, and then hundreds of feet of flat plating. Her stern is huge but also squared off. The superstructure is near the stern, rising steeply to a functional single funnel.

None of this is what catches the eye first of all. Most of her lines – including her superstructure – are dwarfed by what she carries, loaded up to five high on deck, before and aft of that funnel: 'boxes', up to 3800 of them in total. *Peninsula Bay* is a 'box boat' – one of the very newest. third-generation, container ships. A P&O liner, she carries an all-British crew; nonetheless, she is registered in the Bahamas, another victim of the cost of British registration. This, it might be added, in spite of the desire of P&O's chairman to get the British shipping register in better shape.

Peninsula Bay is in Southampton to unload and load, more or less at the same time. The container revolution is never more apparent than in this extraordinary sequence of events. First, one is struck by how few people are involved. The ship is unloaded and loaded in an eerie silence hardly punctuated by human voice. Huge container cranes ashore loom over her decks and deck cargo. Boxes suddenly appear out of the hold, swing high, then back, and drop onto the quay. A straddle carrier (made in Finland) appears from the acres of desolate storage, plops over the container, lifts it and is gone.

Peninsula Bay was built in Japan; her engine is Swiss (Sulzer). She carries a lot of British equipment, of course, on the bridge, on deck as fire-fighting kit. She is the state of the art: huge, impressive, efficient. But she is, as I have suggested, a warehouse on the move, her design by computer programmes enabling her to optimise her trim, ballast and speed for minimum fuel consumption. Her crew quarters are luxurious – hotel suites for everyone, including the wives she carries each trip. There are not many berths, though.

Each time she begins a coastal passage, additional maintenance workers can board to carry out their tasks, all aimed at preventing, for even one hour, her delay. She is a self-contained world, and because of that she is cold, inhuman even. Her lines might be appreciated by Brunel for what they have achieved; but no nineteenth-century painter would wish to linger over her looks. Her lifting capacity is 40,000 tons, five to eight times what an old general cargo ship could manage.

Her real commercial power is in the rate at which she can be discharged and loaded by those giant quay cranes, using very few people ashore. Instead of spending two or more weeks in each of several east or west coast UK ports, she spends thirty-six hours in just one. Hard though it is to judge, she is probably 'worth' as many as twenty to twenty-five of those old ships (each crewed by 40-60 men). That is one reason you see so few ships in port these days...

Shipping is now the most efficient, the furthest advanced, of foreign transports: and here it has been realised. We all want exotic fruits twelve months a year, exotic meats, Japanese stereos, cars, computers. That is how it all started, sea transport bringing the first spices, the first silk and damasks, the first Cognac.

We all willed this. Late twentieth century consumer society created the container ship, the huge ULCC (ultra-large crude carrier), ro-ro and bulker; because we wanted the things they bear, in greater number, with greater ease. What made the *Peninsula Bay* was the unstoppable logic of progress.

Tim Madge

Long Voyage Home (1993)





THE NEXT 25 YEARS

The last 25 years

From the comfort of the year 2020, I have been asked to review the last 25 dramatic years, not so easy but a good deal easier than attempting the exercise the other way round. At the time of the millennium all sorts of predictions were being made about the kind of era that we were moving into. It wasn't long before all kinds of unexpected events began to take place which blew away all but the most cautious indications; global warming, earthquakes, large scale epidemics. There was even talk about a return to a new Dark Age, none of these things providing a comfortable environment for carefully honed economic models and forecasts.

It is welcome, therefore, to note that despite all such disturbances, the world economy proved to be remarkably robust. Governments, both national and international, have been learning to come to terms with large-scale problems and to build their social costs into the general reckoning. Economic growth inevitably slowed down, coming under further pressure from rising resource costs, but world output has still continued to grow, at around two or three per cent a year.

The term 'global village', which was a catchphrase in the 1990s, has become today's living reality. Despite the growth of trading blocs, people have continued to be willing to go to the ends of the earth to trade. So it is no surprise that intercontinental trade, heavily dependent on deepsea shipping, has held up strongly. Trade generally has increased faster than output, with trade in manufactured goods continuing to grow at five per cent or better, as a consequence of specialisation and concentration of production.

The trend in container shipping has been slightly lower than the growth of trade in manufactures, at about four to five per cent a year. Substitution from breakbulk cargo was complete by the early years of the millennium, leaving the industry to face competition for traffic from land-based intrabloc trade and from super-jumbo all-freight aircraft, which contested the top end of the market. Spare capacity has been taken up by more low value goods. This might seem a depressing shift in business until we remember that the industry moves cargo not percentages. There are more than three times as many loaded box moves by sea today as there were a quarter of a century ago.

The weight of this increase has occurred outside the traditional trade routes between the established industrial countries. There has been a dramatic growth in trade between the West and China, where progressively more latitude was given to decentralised administrations. This promoted growth in manufactures. India also, following the removal of socialist controls in the 1990s, has become a major exporter. We used to think of the newly industrialised nations as just a handful but there are now more than a dozen such countries in Asia and Latin America. That said there is still a large group that remain very poor. This shift in manufacturing has increased the importance of the north-south trading routes.

The global village owes its identity particularly to the explosion in communication systems which was well underway by the turn of the century. This gave us the information superhighway. They say that knowledge is power. Today we have instant knowledge at the touch of a keyboard in a way that would have stunned people a generation ago. We all have powerful low-cost PCs on our desks and links into our cars. We can call up a vast amount of data at a touch. If we don't know where to go for a particular piece of information we can enquire of one of the networks we belong to. Salesman can listen to and answer in English questions put to them in Chinese and can produce diagrams and pictures on the customer's screen to illustrate their sales pitch. Such an environment has profoundly affected the development of the intermodal communication, enabling operators to react very quickly to market needs and to operational situations.

The understanding and communications backup between manufacturers' traders and intermodal operators is so close that the distribution part of a sale of goods is automatically accomplished along with the sale itself; the operator moves the goods within the logistic framework of the parties to the sale of goods. He already understands their logistics strategies and the details of their distribution channels. The data exchange is so quick and reliable that he can monitor the goods through the distribution chains and ask questions of detail as he goes along. Payments are made electronically and paper bills of lading and waybills are at last a thing of the past. People often imagine that the world a quarter of a century ahead of them, will look vastly different from the one we are presently living in. My own experience teaches me differently. The old French adage generally holds. It's a fact that many of the fundamentals remain the same. I call to mind turning up a letter written to a national newspaper on the day that I was born – longer ago than I care to remember. It was from a shipowner defending the rates of freight on steel products against a shipper's claim that they were too high. Such arguments run and run. During the last 25 years there has been plenty of argument of this kind between containership operators and traders. And no doubt there will be more.

The global village is a very competitive place within which traders continually exercise pressure for lower rates. The problem for the operators has been to find a new stability mechanism in the vacuum left behind by the conference system. The lines could achieve some rate stability by fleet rationalisation, but the effect was limited by the need to carry an increasing proportion of low value cargo. Nor has there been much scope for a long time for any operator to get a step ahead in terms of efficiency. They are all highly experienced, with very similar cost structures, although the Asian lines have still some vestigial remains of a comparative cost advantage. The scope of product differentiation is likewise limited, despite the multinationals' emphasis on quality.

The main difference between operators relates to the specific nature of the ties which they make with their principal customers, each of whom has their own individual ideas of what they want. This has been an important factor in keeping some long-term stability, but it has not been and cannot be foolproof. The enormous amount of service information available to customers today means that they are tempted and can switch easily.

The approach taken by the big operators to get the edge on the competition has been to go for ship scale. The benefits are such that no one dares to be left behind. The breakthrough to post-Panamax ships had begun before 1995, with vessels already bigger than 4,000 TEUs. Nowadays for practically all the ships on the belt trades around the Northern Hemisphere, and a few others besides, one can substitute FEU for TEU. Vessels average 4,000 FEUs, with a deadweight of 80,000 and 100,000 tons, drawing 14 to 15 metres of water. There are only about 25 ports around the world which can handle them, though the number increases year by year. These vessels are impressively efficient on the large routes, provided they are full.

Technical improvements have been a more fruitful way of increasing

productivity. Slow speed diesel technology has kept up with ship size and enabled the big ships to continue to sail at speeds in the 22-24 knot range. Automation has also continued both in navigation and engine room control. Paints with better salt resistance have reduced the amount of repainting needing to be done at sea. Numbers of crew have settled down in the 12 to 15 man range, particularly after several spectacular misadventures showed the vulnerability of very small crews when things go wrong.

Rates in general have continued very low over virtually the whole intervening period and profits have often been inadequate. With large fleets continuing to sail the seas and excellent intermodal facilities in place, it has been difficult if not impossible to convince the traders that higher rates are necessary to maintain high quality services. They regularly dismiss this as a ritual wolf cry.

Nevertheless the squeeze has caused structural change not to their advantage. Weaker operators have been eliminated from the major belt trades and from some of the north-south trades as well. This has left a large part of world trade in the hands of a very few operators, with Asian companies taking a larger share, partly but not entirely because of China consolidating its position. With the Americans holding their ground because of advantages in reserved cargo and domestic traffic, it is the European lines who have lost out. A headcount of companies with European based operations does not look too bad, but a significant number of them are now controlled from outside Europe.

I should say something about intermodal transport within Europe. With the latest round of accession to the European Union there are now 22 members, six of them from the East, and trade between member states has grown strongly. At times the organisational scene has appeared confused, in part as a result of the intractable exercise of widespread rail privatisation throughout Europe. The search for greater efficiency alongside the drive to reduce national debt was the motive. For many years the prospect of shortterm savings triumphed over environmental arguments. Lorry size steadily crept up to a harmonisation limit of 48 tonnes which together with further, though reduced, motorway building created a freight market over distances as long as 400 miles. The railways found this difficult to match and with little government support, the environmental argument in their favour went by default. Only quite recently has the balance tipped the other way, with governments being forced to limit expenditure on new road building and extract more money from road operators to pay for improvements to a total transport environment.

The structural evolution of intermodal transport in Europe has been somewhat haphazard with a good deal of overlap between the different modal providers. Nevertheless, it seems to work. As in the US, a number of marine intermodal operators have entered the 'domestic' business, owning swapbody fleets and buying space from the train service operators as they do for their marine containers. There are now numerous railheads and many train services all over the European network. Investment and operations are provided in a variety of ways. Swapbodies proved to be more economic than piggy-back and now dominate the market.

This caused marine operators in both Europe and the US to consider whether to widen the size of the cells in their newbuildings. The large post-Panamax fleets provided the opportunity. A dual size system was run for a time but the extra two inches to each swapbody width was not enough to convince them that the hassle was worth it. The tendency has been to get extra cube for part of the box fleet in other ways; more at 45ft, or longer, or at 9ft high. There was never the need on deepsea trades to accommodate that durable product, the Europallet.

Where do we go from here? Looking back has been hard enough and forecasting is a risky game. I am pretty confident that providing the world and its global village survives, in another 25 years it will still be served by an intermodal container industry stretching across the cultures and differences of commercial practice. In the past quarter century it has usually done better than the press it has received. Bon voyage.

Michael G Graham 2020

The transportation food chain

Marine container terminals operate as the last link in the 'food chain' of shipper/ship transportation. From the time the cargo leaves the manufacturing plant by truck and is loaded on a rail car, the steamship line is scheduled to arrive at port to load the container and carry it to its final destination. What happens at the port of loading has changed drastically since the first containerships of the late 1950s sailed between New Jersey and Florida/Texas. The basic concept is still the same, however: to load and

unload the container as fast as possible and to allow for fast access on and off the marine terminal facilities by truck and rail.

Change is a word accepted with much caution in the shipping industry. Usually it is brought about by survival rather than enhancement of operations. In order for ports to survive into the 2000s, they must not only accept change but be at its forefront.

Ships of five to six thousand TEU are already in the planning stages and marine terminals must plan now to accommodate them. With the advent of 'rationalisation' by the steamship industry, larger ships, handling a varied number of shipping lines' containers, are here to stay.

The over-tonnaged markets of the 1980s and 1990s are now being carefully carved out by the shipping lines and ships are being designed and built by the major carriers with the ideas of vessel sharing and slot chartering ever more firmly in mind. This will require more from the terminal operators, not only from the increased productivity standpoint, but also from the information systems area. These vessels will call at fewer ports because of their size and require quick turnaround and communication between ports/rails/motor carriers to expedite cargo to its final destination.

Improvement in gantry and yard crane performance will have to become a fact if ports are to keep up with the growth in containerisation. Productivity levels of 50 or more lifts per hour will be necessary in order to keep a 6,000 TEU vessel on schedule.

Fast equipment is only as good as the terminal layout and information systems available at the port. More emphasis will have to be placed on maintenance of equipment and facilities as well as an increased emphasis on R&D activity. No new ideas should be shunned or put aside without thorough investigation.

While all of this increased productivity is taking place, it must happen at the same time that safety on marine terminals is improved. In the overall picture, increased productivity and safety must grow hand in hand. The cost of workers' compensation is skyrocketing and must be kept under control.

All of the links in the food chain of transportation will have to accept these changes if the most important link, the shipper, our end-customer, is to be satisfied. For he will want to pay the lowest price for the best service available in order to make his product competitive in world markets.

This is and will continue to be our challenge. The ports that accept and improve on this concept will be around for the next round of changes, while the rest will be swallowed by the transportation food chain survivors. For by the year 2000 there will be only two kinds of terminal operators: the quick, those that accept the need to create change to increase productivity; and the dead.

Joseph A Dorto 1994

Asian containerisation to 2005

According to a new study from Ocean Shipping Consultants the outlook for the container trades and ports in the Asian markets is very positive. Sustained economic growth has boosted container trade volumes and this is set to accelerate more rapidly in the next few years. Despite massive investment in new port facilities to handle these demand increases, forecasts indicate some major constraints in capacity on a regional basis.

The study identifies demand growth in the period to 2005 under different economic scenarios for each of the major port range markets in East Asia. In addition, the supply/demand equation for cellular container shipping serving these trades is also evaluated.

The overall development of regional east and south-east Asian container port volumes shows a significant increase in demand since 1986, with an increase of some 145 per cent recorded to reach a total of 46.4 million TEU in 1993. Within a generally very dynamic world demand profile, the Asian ports have now moved into primary position and are recording by far the most dynamic growth.

At one extreme, the Japanese markets have developed broadly in line with OECD trends as a whole, with demand linked closely to economic expansion. Elsewhere in the region, the surge in economic growth has seen market share increase sharply. The integration of Hong Kong with PR China has been a major feature of the past few years, and the gradual integration of Taiwan will see the emergence of a Chinese economic area. These markets have together recorded an expansion of some 150 per cent with total port demand reaching 18.6million TEU in 1993. Even more rapid development has been recorded in the south-east Asian markets where total port demand has nearly trebled since 1986.

Although trade growth remains vulnerable to disruption at the macroeconomic level the most likely outlook from the current perspective suggests further massive expansion in demand in each regional market. Considered in total it is anticipated that demand will increase by some 124 per cent between 1993/2000, with continued further growth recorded between 2000/2005.

Although demand expansion will be broadly based, it is clear that the most rapid demand increases are anticipated for China (broadly defined) and for the south-east Asian markets. It is anticipated that growth rates will be 123 per cent and 170 per cent respectively between 1993/2000. Indeed, the pace of subsequent expansion will be even more rapid. In Japan the depth of the recent recession has undermined container trade growth and thus committed investment will proceed at a pace greater than demand growth. This will see capacity utilisation rates fall to lower levels in the period to 2000.

The scale of investment in Chinese mainland ports is massive and will probably be more than is directly needed in the short term. Conversely, there will be major capacity constraints in both Hong Kong and Taiwan over the next few years. This suggests a lack of deepsea capacity and an oversupply of smaller facilities in the Chinese market as a whole. In terms of capacity utilisation this suggests a general weakening over the forecast period.

In south-east Asia, demand growth will continue to squeeze capacity. Despite massive investment in Singapore and all major regional ports, it is forecast that all economic capacity will be fully utilised by 1999. This suggests that port congestion will constrain growth beyond this date.

Such is the dynamism of anticipated demand growth that a sustained increase in the number of gantry cranes is indicated. Under Base Case conditions it is forecast that the region as a whole will generate a requirement for some 135 further units by end-1995. This will subsequently accelerate significantly in the later part of the study period. A similar approach has also been taken to the development of investment in dedicated container berths. In this case there is also a clear relation between underlying trade volumes and the total level of required investment in new container handling quays. Considered in total it is forecast that there will be a need for a further 18km of container quays in the period to end-1995, with this accelerating sharply throughout the balance of the forecast study period.

Andrew Penfold

Ocean Shipping Consultants (1994)

The last 25 years

The preceding articles look back on the development of containerisation over the past quarter-century from the viewpoint of 2020 and make fascinating reading – particularly from the perspective of 2006.

In terms of its underlying message, there is little to fault the visions as they were written in the mid-nineties. With the benefit of hindsight, of course one can see instances where the pace of development was misjudged and the ball over- or under-hit. However, in the majority of instances, the aim was fairly true and the broad-brush scenarios put forward well within the consensual ball-park – both then and now.

Interestingly, given the continuing rapid growth in global containerisation, there are many more instances in 'The Last 25 Years' where the ball can now be considered to have been under-hit rather than over-hit. Cargo conversion – underpinned by rapidly falling slot costs – has certainly taken on a renewed vigour of late, while containership newbuilding size growth has been little short of phenomenal over much of the past decade, as owners continue to leap-frog one another.

That undershoots are more numerous than overshoots is not altogether surprising. Certainly, looking back over the various reports and future prognostications for containerisation that have been published over the past thirty-odd years, container futurists have fairly consistently under-hit on their forecasts, whether opining on future box traffic growth, forward containership demand or accompanying box fleet development.

Why should this have proved to be the case? There is a possibility that some container industry pundits are pessimistic and extremely conservative in their approach to the future – but not all of them and not all of the time. No, the problem is innate within the industry itself and stems, primarily, from the consistent, rapid growth which has been registered, year-on-year. From an analysts perspective this is extremely difficult to get a handle on, spawning comments such as: 'surely it can't continue at this pace, can it?', 'these numbers look a little high to me, what do you think?', etc.

It is fairly evident that industry pundits, collectively, have been unable to come to terms with the sheer rapidity and pace of the container's development in the recent past. Whether their understanding will improve in the future remains to be seen. In partial mitigation, it must be noted that futurists and analysts looking at other rapidly expanding sectors of the global economy – information technology, telecommunications, etc. – have

suffered from much the same problem when assessing the pace of growth. -

These failings in prognostication, beg a number of questions, primarily, why bother at all? Why indeed; the future is inherently unknowable and forecasting is essentially an exercise in driving a car forward with all the windows blacked out – except the rear one. Things proceed in a more-or-less orderly fashion provided that the car's speed remains relatively low and the road stays relatively straight; increase the car's velocity and introduce the odd bend or two and the situation rapidly deteriorates, generally into a ditch.

It is precisely because the future is unknowable that we are forced to stay open and broad-minded and fast on our feet – as individuals, as business people and, at a remove, corporate entities and societies. Reading articles like 'The Last 25 Years' (the 1996 version) is not so much a process of satisfaction – "we know better now with hindsight" – but rather an invitation to reflect on the myriad possibilities that may be little further down the road or just around the corner in our own future. If this thought process should yield strategies made robust by their wide scope of alertness and swift adaptivity, so much the better.

Len Goss, CSR 2006



THE PERSPECTIVE FROM 2006

Hit and miss

Five speakers addressed the opening session entitled 'Supply and demand imbalance and low carrier profits. Are alliances and mergers the answer?' at CI's 30th Anniversary Conference. As John Fossey reports, their views were divergent and in some cases highly controversial.

'Several key trends have driven the industry's evolutionary development in recent years,' declared John Reeve, vice-president, transportation, at leading management consultants, AT Kearney. 'These include globalisation, consolidation, overcapacity, rate erosion and commodisation.'

The expert stressed that service differentiation was becoming increasingly difficult, with there being 'virtually no stand-alone markets left' and 'tighter clustering of carrier positionings.'

'Virtually all top 20 carriers are now global in service,' he added, 'while alliances and mergers are driving denationalisation.'

Illustrating his presentation with detailed charts and tables, Reeve showed that rates were falling in both the transpacific and Europe/Asia/Europe trade lanes, and that only transatlantic routes were stable. He said that the growth in containership capacity outstripped world trade growth in 1996 and 1997 and suggested that this trend would continue in 1998. A better balance would prevail in 1999.

But Reeve predicted that evolution is about to give way to revolution and that this would be as profound as the very concept of containerisation itself.

'Developments in global information and telecommunication technologies [the growing use of Internet, Intranet and Extranet] will drive this acceleration in the rate of change affecting global trade and transportation, he said. 'Global supply chain integration will force major structural changes.' He highlighted the 'blurring' taking place between traditional industries, such as liner shipping, and high-tech companies such as Microsoft and warned: 'The transportation industry is certain to experience major structural changes. Disintermediation will drive some companies out of business, electronic channels will facilitate trade and its micro-management, and technology will help drive down costs.'

Focusing on the cost scenario was P&O Nedlloyd's CEO Tim Harris, who stressed that the most effective way to reduce costs in liner shipping comes from better scale. He firmly came down on the side of mergers. 'There is nothing new about alliances. They are the old consortia writ larger, but perhaps more impermanent than they used to be (the European Commission now puts a time limit of two to three years on such agreements),' he said. 'Don't get me wrong. I am not belittling the value of consortia and alliances, it is just that many of their savings have been exploited since the early 1970s when groups such as Trio and ScanDutch were formed.'

In highlighting the benefits of mergers, he singled out the January 1997 merger between P&O Containers and Nedlloyd Lines, Harris said merger costs of US\$100 million had already resulted in annualised savings of \$200 million by end of 1997, with 'substantially more to follow in 1998.'

Harris ended on an optimistic note. 'There appears to be a more realistic mood in the air which is also reflected in a slowdown of new orders. It is interesting that some analysts have actually begun to tip the industry for investment purposes. That really is a significant development and more compelling than anything I can add.'

Mark McVicar, transport analyst at London-based NatWest Securities, was one of those forecasting a brighter future.

'The current view of the financial markets is that an upturn in the container industry cycle and its profitability is likely to occur over the next two/three years, but that the upturn will come principally from a sharp fall in vessel deliveries in 1999 and 2000, rather than from the formation of alliances or the limited consolidation that we have seen.'

McVicar explained that the new generation alliances had still not been given sufficient time to prove themselves and lacked market power. 'Their combined market share on the arterial routes is just under 60 per cent, good but not good enough to influence freight rates, given the high degree of fragmentation in the market place,' he said.

The transport specialist cited a lack of pricing discipline as the main

negative factor. Despite the top 10 carriers/groupings accounting for between 75 per cent and 95 per cent of capacity deployed on the top three arterial trades, they comprise over 20 individual lines, 'all competing furiously against each other for the available cargo.'

He added: 'Cost savings of \$100/\$150 a container flowing from alliances are not enough, while mergers, the catalysts for similar savings, are relatively few and far between. Furthermore, the majority of these cost savings are simply being competed away by overcapacity on the main trades.'

Overtonnaging was the central theme of the presentation given by Makoto Ishii, senior managing director and CEO of the liner division at Mitsui OSK Lines. But he stressed that this was caused not simply by carriers over-ordering ships, but was more a function of trade flow imbalances and seasonal factors.

Ishii indicated that variations in cargo flows between peak/non-peak and dominant/non-dominant legs were typically around 30 per cent, but in some cases could be as much as 50 per cent and that this was the main reason for freight rate declines and carriers' worsening profitability.

'But individual carriers cannot be expected to voluntarily reduce their supplies under the system of free competition...,' said the executive. 'All carriers in the trade should enter into an agreement to undertake an artificial adjustment of space supply 'within certain limits' – that is a space freeze – in order to deal with inbound and outbound imbalances.'

Ishii's plan is unlikely to succeed. The EC and Washington (Federal Maritime Commission) have outlawed capacity capping programmes in the eastbound transpacific and Europe/Asia trades in recent years on the grounds of their anti-competitive behaviour.

He was fully supportive of strategic bonding. 'Since alliance members share many mutual benefits, out-and-out competition for survival by defeating the rival is out of the question. Rather, the alliance itself will not be able to continue to exist unless the prerequisite for competition is coexistence and co-prosperity.'

But Michael Beard, president and CEO, Australia-New Zealand Direct Line, disagreed that alliances were the liner industry's salvation.

'Instead of addressing pressing oversupply problems and allowing the market to play, the industry reaction has been to form cartel-like structures,' he said.'...This has been bad for the industry. It leads to what on the surface seems to be a paradox: A combination of long term decline in freight rates, reduced profitability for our shareholders and unhappy and suspicious customers.'

He suggested that alliances were only formed because the industry knew it could get away with it and that they stifled innovation. Beard called for their dissolution, along with subsidies and anti-trust exemptions, arguing that liner shipping should come under the jurisdiction of the World Trade Organisation.

John Fossey

Containerisation International (1998)

The container and globalisation

When the first containers arrived in Europe onboard the vessel Fairland in 1966, only a few experts – among them, the far-sighted publishers of CI – believed that this transport technology would be a success. The sceptics were proved wrong.

The box became both the driving force behind, and the beneficiary of, globalisation as an ongoing process. Scarcely has any other industry achieved such high and continuous growth over a period of 40 years.

The main reasons for the container's success are that it is internationally standardised and deployable in intermodal transport, and ensures inexpensive transport operations.

The shipping lines that committed themselves at an early stage to container transport were taking a high risk. They had to invest to an unprecedented extent in providing an adequate number of ships and containers. At the same time, they were in competition with companies operating with other cost structures and/or focusing on earning foreign exchange, in particular the state shipping lines of the former Eastern Bloc countries.

It also became very quickly apparent that the price was set by the market, and could not be influenced by external factors. Nothing has changed in this respect. Any operator that wants to be successful in our industry must keep its costs under control, use intelligent IT solutions covering the entire transport chain, and focus fully on serving the customer.

The fact that alliances developed with the advent of container transport was a logical consequence of the massive investment required in the new system. The joint use of capacities reduces the level of investment needed and saves costs. Moreover, the partners can usually improve their route networks, and there are potential savings at terminals and means of transport, providing these are legally permissible. The alternative to alliances is acquisitions, to enable operators to achieve a size relevant for serving the market, or a mixture of both alliances and acquisitions.

Continuously improved IT systems are the basic prerequisite for success in the container market. I should accept an order only if I know prior to booking that at the end of the transport operation at least the variable and fixed costs are covered. The current rate trend – with full ships, yet declining rates – suggests that not all companies follow this principle.

The transport of empty containers is an increasingly significant factor on the cost side. We have been achieving double-digit growth for many years – particularly on the main east-west routes, but only on the dominant leg. The non-dominant leg is also growing, though less rapidly.

The gap is, therefore, widening, which means that ever more empty boxes have to be returned to the regions where they are required, which involves continuously rising costs.

Coping with this issue is the key to success in the future. The simplest solution would be for the increased outlay to be covered by the earnings on the dominant leg, but this is seldom the case, unfortunately. A second possibility would involve the shipping line reducing the number of containers that have to be transported empty through internal measures.

Relevant approaches here would be, first and foremost, using intelligent management of equipment with IT support to prevent the round trip of the container from failing to cover costs; or a carefully planned acquisition of cargo. The aim must, in any case, be to increase the turnaround speed of each individual container.

However, it is also obvious that external costs that we are unable to influence have to be passed on to the market. This applies to oil price rises, which drive up the costs; for bunker fuel, as well as for inland transport services.

Another important consideration is the outlay required to tighten up security measures. It is our responsibility as an industry to accompany as well as define this process.

The World Shipping Council plays a very important role in this respect, representing as it does the interests of liner shipping versus national and international authorities and institutions. The aim is to make shipping generally safer, as well as to harmonise the regulations internationally, and also to take the economic aspects into consideration. Another vital issue is protection of the environment, which should be an intrinsic part of corporate philosophy. Many of our customers already demand a comprehensive environmental package. This begins with the fleet – ranging from reducing emissions, via underwater coatings free of tributyltin, to ballast water management – and ends with the containers, including the wood used for floorings and coatings, and for reefer containers mainly, continuing to cut energy consumption.

There are no signs of any slackening in the growth of container transport volume, which is forecast to surge from 85 million TEU to close on 105 million TEU between 2005 and 2008. This means that, in absolute terms, an additional 20 million TEU will have to be transported on ships and transhipped in ports in the very near future.

Providing adequate capacities – at sea and on land – is a further challenge for our industry that we will master.

Adolf Adrion

CEO Hapag-Lloyd Container Line (2006)

China scare

The recent decision of the Chinese Government to suspend the direct mainline services of several carriers has sent tremors through the industry. Yet again, it demonstrates the difficulties and problems companies associate with serving a nation where the state still has such a controlling hand.

During August 1996, the Chinese Government's Ministry of Communications (MOC) announced that it had suspended the services of several carriers calling direct at Chinese ports with their mainline ships.

The reasoning was quite straightforward. 'Our regulations require that foreign lines first apply to the MOC before starting calls at Chinese ports. Several carriers have failed to do this and so we have suspended their services' was the official line emanating from Beijing.

The lines affected by the directive were those engaged in the Europe/China trade and included the Hyundai Merchant Marine (HMM)/Mediterranean Shipping Co (MSC)/Norasia Line joint operation, the combined Maersk Line/Sea-Land Service string (AE-2) and the standalone operation of Marseilles-based CMA. Despite reports that the MOC's action only related to calls made at Shanghai, this seems to have varied on a carrier-by-carrier basis. Thus, while Maersk/Sea-Land and CMA continued to have access to their southern China gateways of Yantian and Chiwan respectively, HMM/MSC/Norasia was also forced to stop its direct calls at Chiwan, Tianjin and Qingdao.

The whole of our China service was affected, declared an MSC spokesperson. We responded immediately by using common-user feeders. Hong Kong became our relay hub for southern and central China and Busan for the northern region.

She stressed that no cargo had been lost as a result of the operational adjustments and that normal service had been resumed since end-September when the MOC granted MSC, along with its joint service partners, the necessary operating permits. MSC (3x3,000TEU) and Norasia (7x2,784TEU) started routing their vessels back to Chinese ports on 23rd September 1996.

CMA has also had its operating license approved by the authorities and recommenced direct sailings to Shanghai in mid-September. 'We only missed two sailings with our large ships', commented Dominique Lovichi, CMA's vice-president for Asia. 'Our customers were covered by using feeder services over Manila.'

But at the time of writing, the Maersk/Sea-Land service appeared no nearer to getting its license approved, despite Sea-Land's CEO, John Clancey, referring to the situation as minuscule and something that could be taken care of reasonably quickly.

Currently, Sea-Land and Maersk are using a mix of their own and local feeder services out of Hong Kong. 'Perhaps it is no surprise that Maersk and Sea-Land are left waiting,' commented a shipping analyst in Hong Kong. 'After all, they are the biggest competitors of Cosco.'

The MOC's latest issue has left lines feeling uncertain about the future. Although executives were not prepared to go on record because of the sensitivity of the issue, each refuted the MOC's accusations that the necessary paper work had not been filed. Indeed, in every case the lines claimed that documents had been filed in good order with the ports and local authorities.

Despite the MOC's latest directive, most liner operators serving China do not think there will be a fundamental change in Beijing's ongoing liberalisation and open-doors policy. 'It's a minor hiccup,' said the Hong Kong analyst. Cosco (and other lines for that matter) are seeking some shelter in order to get their house in order for the new and highly competitive shipping environment that is now coming into existence.

Nonetheless, the last three months have seen an overall tightening of controls by the MOC. The latest controversy, for instance, follows the July 1996 suspension of approvals to set up new shipping companies for either domestic and international services until a detailed study of the nation's maritime industry has been completed.

These latest shock waves are likely to send ripples through the industry for some time.

Containerisation International 1996

China earmarks US\$54 billion for future transport infrastructural improvements

The Chinese Government is planning to spend US\$54 billion on adding 10,000km of new rail and 170,000km of road by the end of the decade. Just over half (US\$28 million) of the expenditure will come from central funds, with the balance raised by the regional authorities and/or sourced from international financial institutions, such as the World Bank and foreign investors.

The upgrades are necessary to cope with the nations burgeoning economic development programme, which on a freight basis alone has swelled road and rail traffic by 51 per cent and 1,000 per cent respectively since 1978. Realistically, rail can only accommodate about 60 per cent of potential demand at the current time.

Among the governments plans are improvements to the Beijing/Guangzhou and Beijing/Harbin lines to raise average train operating speeds up to 140/160km/hour. The Harbin/Dalian corridor will be electrified, while a new rail line linking Nanning/Kunming is nearing completion.

On the roads front, the governments central plank for development is the National Trunk Highway System, which is designed to provide a network of highway class roads linking all major cities, manufacturing regions and inland ports.

At the end of 1995, China's rail network comprised 54,600km of track,

while its total road (paved) system amassed 1.16km. Only 2,400km of road was classified as of highways standard.

Containerisation International 1997

Booming throughput at Chinese ports

Official figures show that container handling at major Chinese ports for the period January to September 2000 grew by 39 per cent to 16.5 million TEU.

Shanghai is still the country's largest port, hitting the five million TEU mark in December 2000, and showing 32 per cent growth up to September. Shekhou Container Terminal, part of the Shenzen grouping of ports, also recorded an impressive 25 per cent growth over the nine-month period, reaching 525,000TEU, making it the second-ranked container port in southern China.

Representing a 35 per cent year-on-year increase, total Chinese trade (imports and exports) reached US\$387 billion. Rising levels of investments in ports and the imminent entry of China into the WTO are continuing to fuel expectations.

Containerisation International 2001

Chinese port growth through the roof

Port statistics just released for the first seven months of 2004 reveal that the Chinese export boom is still in full swing. The country's top ten ports handled a total of 27.7 million TEU between January and the end of July this year, up 27.6 per cent on the same period in 2003.

Shanghai continues to be in number-one spot, but Shenzhen is not far behind, with a 30.6 per cent increase in its carryings over the first seven months. The central Chinese port of Ningbo has been an increasingly popular call for ocean carriers on new trans-pacific and Asia/Europe strings this year, and this is reflected in its enormous 45.7 per cent cargo growth

Containerisation International 2004

China to grow its port development

Li Shenglin, China's Minister of Communications, has revealed that two more important port clusters will be developed over the next five years, adding to those already established at Shanghai, Shenzhen and Tianjin.

Two new port developments will be focused in Fujian province, situated on the mainland side of the Taiwan Straits, and in southern Guangdong province.

The Fujian cluster will include the already developed port of Xiamen, which handled 3.34 million TEU last year, and other coastal cities, including Fuzhou, Quanzhou, Putian and Zhangzhou.

All ports will be developed to handle containers, except Zhangzhou, which will become a natural gas port.

The southern Guangdong development will serve the Guangxi Zhuang Autonomous Region and Hainan province.

Li projected that China's container throughput would increase from 74.4 million TEU in 2005 to 130 million TEU by 2010.

The development strategy will give large foreign terminal operators such as Hutchison Port Holdings, PSA and AP Møller-Maersk further opportunities to develop their Chinese portfolios.

Containerisation International 2006

A brave new 'electronic' world

Electronic Commerce (EC) is presenting many challenges for carriers, but to deal with them it is essential the carriers decide what role they want to play in this revolution in international trade and transportation. It is not too late to take a proactive stance suggest John Reeve, John Halloran, and Robert Heffernan of AT Kearney.*

Executives in the container shipping industry have much on their minds. Globalisation of carrier services, industry consolidation through bankruptcy, mergers and alliances, persistent overcapacity and rate erosion, the consequent need to relentlessly cut costs, and the 'commodisation' of the industry (the increasingly greater challenge to make one's company stand out from the pack) are enough to make insomniacs of even the most stalwart manager. However, a new element of change that will rattle the industry to

its core has now emerged. This new challenge is Electronic Commerce (EC), a technology that is likely to transform international trade and the transportation, logistics, and financial services industries that support it.

EC may be defined as the use of technology to facilitate the exchange of information in commercial transactions among enterprises and individuals, enhancing growth and profitability across the supply chain. The global free market of information technology and telecommunications known as the Internet is at the core of EC. EC is booming. For example, use of the Internet by individuals and businesses is estimated by the US Government to be doubling every 100 days. The volume of EC conducted over the Internet and its derivatives is expected to reach \$300 billion a year by the early part of the next decade.

The Internet and its extended private networks – Intranets within corporate organisations and Extranets that link separate companies in partnerships – are changing the business landscape. Based on the open architecture of the Internet, but protected by the security features of private networks, Extranets provide an ideal platform for business-to-business and business-to-government commerce.

Like electricity, railroads, interstate highways and the telephone, the Internet's economic strength stems from its ability to connect everyone to everything. And just as these earlier transformational technologies rewrote the basic rules of doing business across virtually all industries, the impact of EC on both business and the consumer will be equally dramatic. In particular, the global supply chains that move international trade are likely to be vastly transformed by its impact.

Despite all of the talk about 'Electronic Commerce,' the 'new information age,' and the 'digital economy,' many managers, particularly those in an industry like container shipping with no end of immediate challenges to be faced, may not fully grasp the implications of the Internet's ability to 'connect everyone to everything.' In order to grasp its immense power, it is helpful to think of the Internet as a global web of data and information developed and deployed worldwide, that may be accessed at minimal cost by a constantly growing number of users. This 'World Wide Web' grows and gains strength with each new connection. It provides more comprehensive communications and computing power than either telephones or computers alone.

The 'technology convergence' that has occurred through the coming together of computing and communications technologies via the Internet is clearly driving change in industries such as computing, telecommunications and entertainment. Business-to-business use of Extranets has been growing at an annual rate of 40 per cent in recent years.

Leading technology prognosticators, such as Forrester and Input, forecast that this explosive growth will accelerate further in the immediate future. It is in the business-to-business application of EC that the Internet is beginning to transform the global supply chains of international trade.

The good news for carriers and others involved in international transportation and logistics services is that the already vigorous growth in the volume of global trade is likely to be further accelerated as EC facilitates new connections of buyers and suppliers.

Given the complexity of this supply chain in real life, with multiple participants and 'hand-offs' between those participants along the way, there is ample opportunity to increase significantly efficiency and reduce costs by using the power of EC to integrate more tightly the links in the supply chain. Order cycle times will be improved as greater visibility at all steps of the supply chain removes inefficiencies and blockages. Overall supply chain costs will be reduced as such inefficiencies are removed. Inventory levels will be reduced.

The automotive industry provides a graphic example of the impact – of that supply chain integration facilitated by the technology of EC. Over the last decade, major automotive manufacturers have redesigned sourcing relationships with their suppliers to drive billions of dollars in costs out of the manufacturing process. Taking these successes to another level, General Motors, Ford and Chrysler, with other auto manufacturers' have recently developed the Automotive Manufacturers Exchange (AMX). This is intended to standardise global automotive procurement processes in order to reduce trading partners' costs and system complexities by enabling the application of EC throughout the industry. The estimated annual savings from AMX are projected to exceed one billion dollars in the first of many applications that are to be developed, in this case, the re-engineering of car seat design and specifications.

AT Kearney

Containerisation International (1998)

APL introduces email bill of lading instructions

APL has introduced a new service that allows shippers with limited or no Internet access to submit B/L instructions electronically. Known as BL Instructions (Desktop), it allows customers to create their instructions offline in a pre-determined format, and then to email these directly to APL. If the instructions are faxed, the information has to be re-keyed in by APL afterwards, so running the risk of errors.

The service has been tested with customers in India and is now available in over 30 countries.

Phillip Chin, APL's vice-president of e-commerce products, said: 'This product allows customers with limited electronic resources to submit B/L instructions with any email system anywhere in the world and send multiple instructions simultaneously. It also provides them with an instant email response from APL, to reassure the sender that the instructions have been safely received.'

BL Instructions (Desktop), combined with APL's suite of web-enabled B/L tools, can also be used to help customers achieve full compliance with the US's Advance Manifest component of the Container Security Initiative. This requires shippers to lodge cargo details with US Customs at least 24 hours before loading.

Ted Fordney, APL's vice-president for marketing, customer support and e-commerce, observed: 'We are actively encouraging customers to file the information for US Customs via our e-commerce channels. It saves customers money as e-filing costs just US\$10, whereas there is a US\$30 charge for filing by fax, plus it saves us time and the need to re-key data.'

Containerisation International 2003

Wal-Mart

Wal-Mart has launched its much-vaunted radio frequency identification (RFID) technology with eight volunteer companies.

Out of more than 100,000 products in a Wal-Mart Supercenter, 21 products from these volunteering suppliers will be tagged with electronic product codes (EPC) before shipment from the manufacturer. Readers on

the dock door at Wal-Mart's regional distribution centre will automatically announce shipments' arrival to the relevant parties.

The technology will only be used in the Dallas-Fort Worth (TX) area, at the pallet and case level rather than item level for the foreseeable future. Dallas-Fort Worth was chosen because all four of Wal-Mart's store formats are based there.

This pilot will prepare for Wal-Mart's January 2005 deadline for its top 100 suppliers to be using EPC's on boxes destined for the region.

Another 37 suppliers have also volunteered to meet that deadline.

Containerisation International 2004

Going electronic

While the major ocean carriers have had much success in persuading large shippers to handle commercial transactions electronically, much still remains to be achieved with small- to medium-sized companies. Matthew Beddow investigates why Cargo Management & Logistics, a small- to medium-sized forwarding agent in the UK, believes that the benefits of the Internet already far outweigh the disadvantages.

Five years ago, electonic communications between ocean carriers and their customers were heralded as the way forward. Paper would become a thing of the past, and all messaging would be faster, cheaper and more efficient.

Instead of having to laboriously make bookings over the phone, and confirm the order via email afterwards, the whole process would be done more simply over the Internet.

The same would apply to the manual completion of shipping instructions, and remote bill of lading (B/L) printing would be the ultimate time saviour. Rather than having to wait at least two days after each vessel's departure before receiving original B/L, and then usually having to send them back for correction, the whole process could be electronically handled in minutes.

To some extent, this has all come to pass from a carriers' point of view, particularly with regards to large shippers who can afford expensive electronic data interchange (EDI) connections directly between their own Equipment Resource Planning (ERP) systems and those of their service providers. The Internet may be faster than telephone and fax, but this is nothing compared to having your own dedicated piece of wire to relay vast amounts of information at the press of a button. The road has been rocky, though, and there are still a few bumps to level out.

The major problem for ocean carriers has been the conversion of smallto medium-sized shippers, who have been much slower to embrace the Internet. As 20 per cent of most carriers' business comes from 80 per cent of its customers, being the reverse of the 80/20 rule, it is easy to understand why the issue is important, and why flattering statistics put out by ocean carriers regarding the success of their conversion campaigns can be misleading. When a major carrier like APL factually claims that 72 per cent of its bookings in 2004 were taken electronically in Europe, and 68 per cent of its B/L were printed remotely – figures that are far higher than for most – they seldom break the statistics down into more detail, thereby creating the impression that a much broader cross-section of its customers are involved.

Commenting on this situation, Stuart White, manager for Africa at Cargo Management & Logistics (CML), a medium-sized forwarding agent based at Oxted in the UK, said: 'The problem in the beginning, perhaps, was that ocean carriers led their customers to expect too much, too fast. For example, when P&O Nedlloyd (PONL) first announced that it had a global electronic track-and-trace system, what was not made clear to us was that it was not built into an integrated global system. Without this, regional servers are not able to talk to each other automatically, to enable information to be exchanged in real time. This means that the most up-to-date tracking information is not always immediately available, so you might as well call up a local office to get it more quickly.'

Even today, only a few carriers, such as Maersk Sealand, APL, OOCL, Safmarine, and now PONL, have this facility. Another problem is that not all companies yet offer an electronic booking facility in real time, so bookings still have to be confirmed via email, often making telephonic acceptance faster. But over and above all of this, many small-to mediumsized shipping companies still do not yet offer Internet access to all of their staff.

CML specialises in the Zambian market, handling about 10,000 tonnes of copper monthly, plus other exports such as tea and coffee, and another 100 containers per month of imports.Not surprisingly, much of this is shipped with only those carriers specialising in its core markets, such as Safinarine, PONL and MOL. Michael McIntyre, forwarding manager for CML, explained: 'As we are not as big as other 'global' forwarders like Panalpina or Kuehne+Nagel, we have to rely more on personal service, and less on automated systems, so this is what our service providers have to be able to offer us. With the bigger carriers, it is not always available – their people are often tied up in meetings, or travelling, so you just get an answer machine.'

Despite all of the Internet drawbacks mentioned, CML now fully embraces electronic communications with all of its ocean carrier partners. McIntyre explained why: 'E-commerce solutions are often the saviour of big companies needing to streamline procedures, but they can also be a big benefit to small companies like ourselves that have less staffing resources. Time is our biggest enemy, so anything that enables us to get more for less has to be worth examining. The trouble is that the examination of ecommerce solutions initially takes time, so it helps to have a lot of young people willing enough to try new ideas – which we have.'

He continued: 'Since investing that time, we have never looked back, and only see things getting better and better. For example, Safmarine may not yet be able to confirm electronic bookings in real time, but on-line booking requests to them are now given priority, and a booking reference number is immediately allocated. Confirmation of the booking request is usually received within 30 minutes, and the booking reference number is rarely changed. Even before this system, we often found that ocean carriers' booking desks were unavailable over the phone anyway, so messages had to be left on their answer machines, which was not satisfactory. As a result, about 90 per cent of our bookings are now made over the Internet.

'Because our company has a lot of repeat bookings, we have a standard booking template built into our internal IT system, so only minor adjustments have to be made for each new booking, rather than having to repeat the same information over and over again. This saves a lot of time and effort, and avoids keying in errors. Even more time is saved when it comes to shipping instructions, because more information has to be provided at this stage.' Shipping instructions still remain the base document for the production of B/L, so get them wrong through a keying error, and the B/L will be wrong.

Commenting on this favourable report, Ian van Straaten, a manager responsible for e-commerce solutions in Safmarine, said: 'Our integrated global e-commerce system is very important to us.We see this side of our business as a way to differentiate ourselves from our competitors, rather than as a way to reduce costs. It is one of the reasons why carriers' services such as ours should not be described as a commodity.'

The development of remote B/L printing has proved to be a big challenge for ocean carriers and shippers because of the high level of security required. Van Straaten elaborated: 'Because a set of original B/L are considered to be a document of title, it is essential to ensure that they do not end up in the wrong hands. The trouble with the remote printing of B/L in someone else's office is that you never know who is physically waiting to receive them there, so security is paramount. Signatures are also difficult because of the way they are transmitted, but under the new eUCP (Uniform Customs and Practice for Electronic Presentation) 500 terms, most countries' banks now accept digital signatures, so this is much less of a problem than before.

'Fortunately, more secure systems are now available. Safmarine ensures complete security through the installation of a digital certificate (high level security tag) that is installed in its customers' computer hard drive. To become registered, a prospective user's online registration (name and company) to head office first has to be authenticated by the carriers' nearest local office. This means that we always know who we are working with, before the security system kicks in.'

Extolling the virtues of the whole e-commerce system, White said: 'Apart from the convenience of using this approach, CML also gets business through being able to provide a better service to customers. Bills are now delivered on time. Before remote B/L printing, it sometimes used to take us between seven to ten days to get them to customers. If a vessel sailed on a Friday, two days would be lost over the weekend, plus another couple of days for postage to us. If corrections were required, they then had to be sent back. Once completed, they subsequently had to be sent by courier to our customers, and so on.

'Now, we save all of this time and cost, and can even arrange for the B/L to be printed in Zambia or Asia if needs be. Where the electronic signature is a problem, we issue our own house B/L.' Delivery of B/L on time is important to release letter of credit payments promptly, and expedite delivery through customs after the goods have been discharged at destination. Demurrage payments are additionally avoided this way. A further benefit of remote B/L printing for imports is that each vessel's rate of exchange is confirmed as soon as a B/L number has been allocated after sailing. Customers, therefore, can immediately start invoicing consignees

accordingly, where this is necessary, instead of having to keep chasing the information later on.

Not all ocean carriers can yet provide draft B/L for checking before a vessel sails, which van Straaten claims is another advantage of the Safinarine system. He said: 'This is an important benefit of our system because its means that everything can be checked at a time which best suits customers, rather than in the busy period immediately after a vessel departure.'

White continued: 'Customers are also now directly using our ocean carriers' Internet-based container track-and-trace systems themselves, to get assurance that everything is going according to plan during the voyage, which saves us further time and hassle, although we still aim to help them too.'

In this respect, the e-commerce market leaders APL, OOCL and Maersk Sealand have taken track-and-trace a step further than most by being able to send their customers failure reports by email – that is, the identification of instances where agreed milestones during a voyage have not been met. This saves customers having to check that everything is going according to plan, which can be a laborious process in the case of large shipments. The problem with the system is that customers' inboxes can become inundated with emails if it is too finely tuned.

The process of e-commerce development is far from over, with the next step being the development of invoicing and freight payment, but much still needs to be overcome here.

Summarising the attitude to e-commerce, McIntyre said: 'Now that we are used to working the way we do, we find it really tedious to have to go back to conventional ways, which generally means that if freight rates are the same, we will support those carriers that provide good e-commerce solutions. But it is our customers who are the biggest winners, because they are getting a better service at no extra cost.'

Matthew Beddow

Containerisation International (2005)

Editor's comment

Is it really possible, or even desirable, to take politics or governmental interference out of the ports industry? In a perfect world (for private port operators), there would be no politics in the ports business. Everything would be left to market forces, with the efficient prospering and the inefficient, subsidised operation withering away.

And there is much to recommend this. Indeed, Rubens Ricupero, secretary-general of the United Nations Conference on Trade and Development, in his speech at the recent International Association of Ports and Harbours conference in London, pointed to the superiority of the market, when he stated: 'There are successful and unsuccessful ports in the world: the successful ones are all highly market-oriented.'

However, ports being what they are, ie, integral parts of local and national communities, political influence or interference will continue to be a factor. This is so even though more and more ports around the world are being privatised and the wholly government-controlled authority seems to be progressively heading for extinction.

For one thing, there is still a continuing need for government to maintain a regulatory framework to deal with matters which have national and international implications, such as safety and the environment. Environmental concerns are quite rightly intensely political matters. What could be more important than ensuring that the public interest is taken into account when the danger of potential pollution from dredge spoil or threats to local wildlife are at stake? Similarly, safety is a subject in which government must play a part.

Also, government will continue to be involved as a co-ordinator of port development. For example, it is the legitimate role of government to ensure that projects have the necessary road, rail and waterway links to their hinterlands and that these connections do not adversely affect the quality of life of the communities through which they pass. In many instances, the funding or underwriting of the necessary superstructure is also left to the national and/or local purse and so competing for what are frequently scarce resources becomes a very political process.

Financing port development is also a grey area in terms of defining what does, or does not, constitute a subsidy. It is one where talk of achieving a level playing field is a recurring theme, especially in Europe, where practices vary significantly between and within EU member states – so much so, that the European Commission's Transport Directorate (DGVII) will be looking into the financing and charging of port and maritime infrastructure in a Green Paper on European Ports Policy to be published later this year. This, in itself, promises to be a highly political document – can it be anything else if it comes out of Brussels?

Port privatisation, although designed to remove government control from port operations, is also inherently a political process. The only hope is that it can be an honest, fair and open one. Unfortunately, this is not always the case, as some of the international port operating companies have found to their cost recently.

So, taking the politics out of the ports industry is impossible, undesirable and unlikely. The only exception to this should be when a government tries to persuade its country's importers and exporters to use their national ports. In such a situation market forces should prevail.

Jane Boyes, Containerisation International 1997

Port privatisation – if union can't beat 'em, join 'em

Port privatisation is a reality. So for dockers and their trade unions, opposing it in principle is no longer a realistic option. But there is much that union leaders, employers and governments can and should do to make privatisation beneficial for all. So argues the International Transport Workers' Federation (ITF). John Crichton reports.

Long words and legalistic language are union leaders' usual stock-intrade. But ITF's policy on port privatisation can be expressed in the simplest of terms:

- A dockers' unions should no longer oppose privatisation in principle
- B no port reforms should be introduced without consultation and negotiation between governments, employers and unions, leading to all-round agreement
- C if unions are not consulted, or if they are denied the opportunity to negotiate and reach all-round agreement, then they will oppose the reforms; and such opposition will be vigorously supported by transport workers' unions worldwide.

Prior to 1996, privatisation was broadly seen by ITF - the International Transport Workers' Federation, comprising 470 transport workers' unions from 120 countries – as detrimental to the interests of dockers, and

therefore, something to be fought. But in November of that year, at a regional dockers' conference held in Lima, Peru, ITF delegates took a more pragmatic line. They agreed that no standard model exists for port restructuring; that it is not privatisation as such which destroys workers' jobs or worsens working conditions, but the bad decisions which follow it; that in-principle opposition to privatisation had not worked, even where the opposing unions were strong; and that privatisations should be judged by their effect on employment and the conditions of workers, who should never end up worse off as a result of them.

At an ITF dockers' conference in Miami in June, 1997, these themes were hardened into a resolution on privatisation, the essence of which is set out as A-B-C above. The conference also 'demanded' that governments, employers and financial institutions should provide funds to enable unions to negotiate on an equal footing, and to solve any social problems arising from port restructuring. A parallel resolution condemned, inter alia, efforts by governments and employers to replace union workers with non-union ones. Finally, there was a contract of ITF solidarity towards unions facing privatisation without consultation or fair negotiation, and towards unions being undermined by government or employer.

The idea of unions working with, rather than against, privatisation is rarely voiced in other areas of the transport industry, or in the trade union movement as a whole. It was ITF dockers' secretary, Kees Marges, who developed the idea. Or, rather, he expanded on principles earlier expounded by the International Labour Organisation. And it was Marges who thereafter persuaded the leadership of ITF's affiliated unions to adopt it. Now, he says, the task is to win over union officials and rank-and-file union members in the ports where privatisation is actually taking place.

This new ITF policy came too late for the spate of container terminal privatisations which happened in the early- and mid- 1990s, but there are others in the pipeline. Marges walks CI through the list:

Africa is not yet in privatisation mode. Only in Mozambique and Kenya have there been any steps in that direction. South Africa's position on privatisation has become increasingly hazy. Information on the status of African dockers' unions is generally sketchy, ITF's own regional representation being in a state of flux (however, Marges was recently alerted by ITF's Nigerian affiliate of impending commercialisation at Lagos. For Marges, commercialisation is the first step towards privatisation).

Argentina's privatisation developments were way ahead of ITF's new game. Brazil, which is in the throes of privatisation and other port reforms,

has shown some hopeful signs. Last year, for example, Marges addressed a meeting of local union leaders in Santos and was pleasantly surprised when they immediately turned round and repeated his arguments to their members. One problem is the large number of unions, and their complicated interrelationships. Moreover many casual dockers, having accepted pay-offs to leave the industry, then tried to compete for the reduced number of jobs with casuals who had not been paid off – causing violent clashes between the factions. Such internecine warfare is common in reforming ports, and is highly damaging for all parties.

Chile, where privatisation is coming, is clearly not providing a suitable framework for consultation and negotiation: demonstrating workers were recently beaten up by military police. In such circumstances, it is difficult for local union leaders to persuade their members that there is any suitable course other than opposition. But the union movement in Chile is so politically divided that any kind of united policy is hard to come by. As in many other Latin American countries, individual politicians and individual unions depend on each other for power. Such reciprocal favours are very much threatened by privatisation, which tends to get resisted as a result.

China is still outside ITF's orbit as far as dockers are concerned.

Europe, at least western Europe, can be seen as a fully-privatised region – even if some terminals have municipal shareholders. Italian unions have historically opposed privatisation but Marges feels that in the case of future privatisations, the unions there will adopt the ITF model. The UK was an example of unions opposing privatisation in principle – with entirely unsuccessful results. 'If all you are offering is opposition, then from the other side's perspective you are not worth dealing with, because you are walking off the playing field,' is how Marges views such a stance.

The Indian sub-continent is becoming a focal point for port privatisation. In Mumbai, Marges has been gratified to hear the powerful general secretary of the All-Indian Dockworkers Union openly supporting his idea. But at a 1997 seminar in Sri Lanka, discussing the interests of dockers' unions in Bangladesh, India, Pakistan and Sri Lanka, ITF's Sri Lanka affiliate came out strongly against privatisation, because of the local situation.

Arriving at a statement expressing a jointly-held position was vital, for the sake of regional union solidarity and in order to have an entry-point for future negotiations. Eventually, they reached a compromise: approval of the ITF idea, but with many tough conditions on top. The wide political disparity in India means that unions' characteristics vary greatly, depending on where they are.

Malaysia was one of the first developing countries to go in for terminal privatisation. Despite being less democratic than many, Malaysia's government nevertheless came up with an approach to privatisation that was very similar to the ITF model – years before that model was actually formulated. Its essential features were no enforced dismissals and no worsening of dockers' working conditions.

Mexican privatisation is also now history but, in the case of Vera Cruz anyway, far from the ITF ideal, involving as it did the use of military force and the rooting-out of the local dockers' union.

The Mid-East is not unionised, hence ITF has no involvement there.

New Zealand was one of the first countries to exercise port reform, well before the new ITF plan. The outcome was unsatisfactory: the abolition of collective bargaining and a reversion to casualisation of the undesirable kind.

North America has ports and terminals of all types, ranging from stateowned to tenanted to fully private. It is not a primary area of union concern or ITF attention as far as port privatisation is concerned.

Panama's dockers' union leader was originally opposed to privatisation but has since come round to the ITF way of thinking. However, the influence of that union has been diluted, in the wake of all the private terminal developments there.

Having touched on most of the continents and countries where privatisation has been, is or may become an issue, Marges turns to a special case: Australia. The conflict there is not about privatisation, which happened a long time ago, but about the government's hostility towards the union. Marges admits to some amazement at the proposals put forward by the leader of the Maritime Union of Australia (MUA) to the stevedore employers and the government. He volunteered to switch from an overtime-based remuneration culture to a new system based on annual salary plus productivity-related payments. 'Years ago, when I was negotiating with the terminal operators on behalf of the Rotterdam dockers, that was exactly the same proposal the employers came up with, and which I rejected outright,' recalls Marges.

Despite its progressive approach, Marges says, MUA is under attack by the Australian Government. 'Discussions were going okay, when all of a sudden came the Dubai incident. That really set things back.'

It may be recalled that a recruitment agency - allegedly with Australian
Government backing – tried to train non-union labour, including Australian troops, in cargo-handling skills for use in union-busting in Australian ports.

Since late 1997, when the campaign to introduce non-union labour in Australian ports really began, ITF has lent support to MUA in accordance with its Miami 'contract of solidarity.' This amounts to threats to black ships – wherever in the world they may go – which have visited Australian non-union terminals (see ITF's informative website at www.itf.org.uk).

Referring to taunts from a non-union employer that ITF has no teeth and is a paper tiger, Marges rubs his hands with glee. 'That's just the kind of remark you pray for when you are involved in a strike and you are struggling to keep the impetus up. If an employer comes out with a comment like that, your problems are immediately solved. To him, I say thank you very much.'

Taunts are one thing, troops are another. Marges regards the deployment of the military as unforgivable – something MUA will never forget.

Briefly dipping his toe into the murky waters swirling around allegations of poor Australian terminal productivity, Marges points to conclusions drawn by himself from data in the latest Containerisation International Market Analysis: with 43 per cent of its gantry cranes aged over 18 years (world average -30 per cent), Australia has by far the oldest crane technology in the world. 'That's one explanation for the level of productivity there,' he declares.

Returning to the issue of privatisation, one argument often voiced by its opponents (on both government and union side), mainly in developing countries, is that since there is no social security, the only way to keep people from starving is to give them an income by employing them. Marges is not unsympathetic: 'You can't blame the workers, who are only in this position because politicians did not organise their countries properly.' Sometimes, the privatising authority does insist that the in-coming private operator must employ a minimum number of the existing workforce, at a certain minimum wage.

Marges regards as only fair the concept that unions should be sufficiently funded from outside so that they can conduct negotiations on equal terms with employers. This means budgets for research, travel and accommodation, communications and all the other expenditures that well-heeled employers take for granted. Otherwise, the union side will be fighting an uphill battle from the start.

But, Marges warns, during the privatisation process union leaders must

show commitment and must be prepared to compromise. Once a leader has secured the best deal he can, he must then be ready to justify and defend it in front of his membership, which may not always be instantly amenable. As for employers, they must accept that unions are democratic organisations, so decisions and approvals may take time to thrash out.

Nevertheless it is a stark fact that when privatisation actually comes, the change from being employee of the government, often with considerable influence over it, to being part of private industry, comes to many unions as a major culture shock.

But at the end of the day, reiterates Marges, privatisation itself is not the issue. The important thing is how it is done, and the eventual position of the unions as part of it.

John Crichton, Containerisation International 1998

The aftermath

The terrorist outrages in the US on 11th September 2001 accelerated a dramatic downturn in the global economy. But there are very different consequences for shippers, ocean carriers and freight forwarders. David Eller sought the views of leading shippers and forwarders in Europe, and a New York-based forwarder.

Both providers and buyers of ocean freight and distribution services have been affected by the terrorist attacks on New York and Washington on 11th September 2001.

Added to this are the effects of the global economic downturn, already manifesting itself before the outrages.

The drastic decline in the revenues of the ocean carriers has already been analysed in these pages.

European shippers generally affirm that it remains very much business as usual for them (although all acknowledge that per-container ocean freight rates are now significantly reduced). Forwarders in Europe tend to disagree as to the implications of depressed global economic conditions, while still, as always, claiming positive future prospects.

Traumatic though the events of 11th September were, many shippers and forwarders emphasise that they accelerated a decline in global trade which had been developing for some time. It was not the attacks themselves that triggered the current collapse in rates on the deepsea liner trades. Joergen Schmidt, ocean freight director of Eagle Global Logistics (EGL), has overall responsibility for EGL's ocean freight activities in north-west Europe. He pointed out: 'Volumes of container traffic moving on the deepsea liner trades were already falling before 11th September, and I believe these falls will accelerate. Export volumes moving on the liner trades from Europe are moving lower, and will fall further.'

Similarly, Thomas Eisenblatter, managing director of Air-Sea Broker (the procurement arm of Panalpina) emphasised: '11th September boosted an existing downtrend in the global economy.'

However, Paul Young, UK national surface freight manager at Exel, the logistics and freight forwarding services provider, tempered such remarks: 'There was an immediate downturn in business (for Exel), but that has already been reversed. Many of our colleagues in the forwarding industry are saying their business has turned down, but that is not the case for us.'

At Geologistics, Dermot Leeper, director of global product development, asserted: '11th September has not really made any difference to our seafreight business. The economic situation was already clear before 11th September, and has not changed since.'

In Paris, Alain Morin, logistics-sea-liner shipping manager at the Atofina Group, reflected: 'Really, for us in Europe, terrorism in nothing new. In the UK you have lived with IRA terrorism for many years, and in France we have endured Corsican, Basque and Breton terrorist movements. We are used to terrorism here in Europe.' As for the recession, Morin declared: 'I do not think things have changed, because the recession was starting before 11th September.'

Major French industries are currently working on crisis mechanisms in relation to their management supply chains. These can involve measures to combat security risk, and take into account factors relating to the threat of terrorism, and, possibly, economic recession.

Lonza's Bircher proclaimed: 'The economic downturn, and the effects of 11th September, have not really affected our oceanfreight traffic much, except that, when shipping to the US, there are delays when the containers arrive at US ports, due to port authorities checking cargoes more carefully than before. One consequence of this, according to Bircher, can be port delays before containers are released to be on-delivered to consignees. He also referred to distribution from US ports to inland destinations having become slower, due to police checks on drivers licences and security checks at freight depots. Morin at Atofina has found that many global customers are now maintaining smaller inventories, increasing, he believes, the need for effective JIT distribution. With road congestion in Europe making distribution slower, he felt that customers now have to accept that longer distribution times are more realistic.

Lower ocean freight rates equate to slimmer profit margins for forwarders handling traffic for shippers on a contractual, or agency fee, basis. Conversely, for the larger forwarding and logistics groups operating on a worldwide basis, the current emphasis on effective supply chain management, incorporating time-definite transit time guarantees offered by some logistics operators, are opening up new opportunities.

Indeed, Kuehne & Nagel CEO Klaus Herms, when presenting the group's results for the first nine months of 2001, affirmed: 'Focussing on high-value integrated logistics and supply chain management solutions generates evident results, and is of advantage in times of an economic slowdown.' During a period in which pressure on rates has created difficulties for the ocean freight industry, he felt that 'Kuehne & Nagel has maintained its high level of results due to market acceptance of its value-added services and the integration of sea freight and logistics activities.'

Well-defined consequences have become apparent from the events of 2001. Many smaller forwarders restricted to handling container traffic for their customers on an agency fee basis could disappear. But the increased relevance of supply chain management, together with the weakened bargaining power of ocean carriers, looks set to enhance the global power of the top ten or so global forwarding and logistics groups.

Shippers, despite the drag of higher insurance war risk costs on certain trades, are on the verge of, or already enjoying freight rates which are historically low in true-cost terms. A bonanza has fallen into their laps.

David Eller, Containerisation International 2002

New anti-terror bill introduced in US. . .

A new anti-terrorism bill has been approved by the US House of Representatives' Transportation and Infrastructure Committee, and passed to the House floor. Dubbed the Maritime Transportation Anti-terrorism Act of 2002 (HR3983), it complements the Port and Maritime Security Act 2001, recently passed by the US Senate (see 'High priority for port security in US', CI February 2002, p10).

HR3983 provides for the US Department of Transportation's (DoT) security assessment of foreign ports, and refusal of entry into the US for vessels transiting ports where security procedures are unsatisfactory.

- The DoT would develop a system for the screening of containerised cargo, and produce standards for container security (including seals and locks), by 30th June 2002. It would also have to assess the security of US ports, and prepare a national maritime anti-terrorism plan.
- Carriers, customs brokers, freight forwarders and shippers would be required to provide information on containerised shipments electronically, at least 24 hours before being loaded onto a vessel bound for the US.
- Transportation security cards, only issued after background checks, would restrict access to vessels and facilities.
- Operators of vessels and terminals may have to develop their own plans 'for deterring a catastrophic emergency' by 1st January 2003.

Under H3983, the DoT would receive \$225 million over the next three years (\$75 million for each of fiscal 2003, 2004 and 2005), to provide grants to improve security.

Containerisation International 2002

Security vs supply chain

With increased terrorist activity, the shipping industry sees security as a very important issue. Neil Dekker spoke to a number of companies in Hong Kong to determine how much impact the US Customs 24-hour manifest ruling has had on their business practices.

The repercussions of the September 2001 terrorist attacks in the US are still being felt by the global shipping community.

One major initiative in the US drive for increased supply chain security has been US Customs' 24-hour manifest rule. It was announced in August 2002 and became effective 2nd February 2003.

Commissioner Robert Bonner, head of the US Customs service, stated: 'Compliance with the 24-hour rule is a matter of national security.

We applaud the efforts of those entities that have taken the rule and implementation period seriously, and we caution those that have not.

Incomplete and late data will not be tolerated from carriers and NVOCCs of any size.' The message was quite clear (see 'What does it all mean?).

Not surprisingly, the rule has raised a number of issues within the shipping industry, positive and negative, simple and complex. Despite the fact that ocean carriers, ports and NVOCCs are all affected in many ways, ultimate responsibility for the rule's success or failure rests with shippers. Only they know what is to be loaded inside containers and when they are loading.

The information flow starts with them. The main problem is processing all this information down the line to US Customs in a manageable and efficient way.

Currently, this is done either via US Customs' Automatic Manifest System (AMS) or via old-fashioned paper transferral means. On this point, some would question whether or not US Customs has fully explained requirements or given sufficient lead time to shippers. However, a comprehensive question-and-answer session on the US Customs' website, together with efforts from the ocean carriers to educate shippers, have attempted to counter these sentiments.

Hong Kong shippers have been particularly concerned about the rule simply because an average of 6,000TEU/day move through the port, destined for the US West Coast. Hong Kong is a major gateway for Chinese cargo to the US.

For ocean carriers, worries have focused on their ability to handle increased volumes of data, staffing levels and higher costs. Alfred Lo, P&O Nedlloyd's (PONL) general manager in Hong Kong, commented: 'Customers demanded accurate documentation even before the US Customs ruling. For this reason, we started setting up documentation centres two years ago in Shenzhen and Pune. We can now adjust our workflow to meet the market demands. We have developed various programmes to help us identify with the AMS-approved NVOCC's and which are the cargoes with manifest data transmitted in time, so that we know which cargo is to be loaded. Nevertheless, the impact on our staff and cost levels are massive because more detailed information is required within a shorter time frame.'

It was perhaps fortunate that the rule became effective during the

Chinese New Year holiday in early February, when cargo volumes were markedly reduced. CMA CGM's general manager in Hong Kong, Stephane Mazain, commented: 'In these early days, it has gone better than planned, and we have had none of our containers rejected by US Customs, although we have rejected about three per cent of our traffic due to incorrect data submissions. The market has regulated itself, but when volumes pick up, who knows what will happen.'

According to the Hong Kong Shippers' Council, only 2.6 per cent of the total containers available for shipment in the first week of February did not load due to insufficient or incorrect cargo details. However, executive director Sunny Ho added: 'More containers will be affected when traffic starts to pick up.' A further admission by Commissioner Bonner declared that only 13 'no load' directives were issued by US Customs, instructing ocean carriers to reject containers, in the week from 2nd February until 9th February. Yet it must be stressed that volumes were slow during this time frame.

PONL's Lo warned: 'The impacts will be more significant to those smalland medium-sized companies (including ocean carriers) that do not have the required resources to handle the substantial changes in their business practices.'

The technical means of submitting data via AMS directly to US Customs, and not via ocean carriers, has been a bone of contention for some Hong Kong companies. In theory, it should be efficient, saving time and money for shippers.

Costs are a major issue for all parties affected by the rule. Ocean carriers have their own increased staffing levels to deal with. This, however, is being addressed by the implementation of a special documentation or administration fee. Surcharge requests have to be filed through the Federal Maritime Commission, and by early February, Hapag-Lloyd, Hyundai and several others were charging shippers between US\$20 and US\$25 per B/L. This is in addition to the local documentation fee of HK\$115 (US\$15) per B/L. Both PONL and CMA CGM confirmed that they would soon be implementing a similar charge. PONL's Lo predicted: 'This will become a standard surcharge item sooner or later.'

Anecdotal evidence that some ocean carriers have been charging between US\$25 and US\$40 per B/L for manifest corrections has also been received by CI.

Most NVOCC's have accepted charges from the carriers - which, on

this one occasion, do not appear to have been so controversial – but not the start-up costs for using AMS. NVOCC's that cannot yet file directly by AMS, and have to submit via paper means through the ocean carriers, are most affected by the cost issue.

Confidentiality of sensitive information has also been of major concern for some NVOCCs.

It is not uncommon for an LCL consolidated container to have up to ten house B/L or individual shippers, so the additional US\$25 is multiplied by ten. In these cases, it can only be presumed that costs are passed back to shippers.

This could in time have an impact on which NVOCC's a shipper chooses and, ultimately, the smaller companies might suffer from loss of business as well as extra costs. The incentives for shippers and NVOCC's to dispense with paper transactions via the ocean carriers are painfully clear.

Clearly, FCL traffic is not so affected.

Ocean carriers are still receiving cargo at their CY as per previous cutoff times, but this is largely irrelevant for the cargo consolidators of LCL traffic, of which there are hundreds in Hong Kong. As information is required much earlier, they cannot load at the end of the week. This shows that the 24-hour rule has hit them the hardest. By contrast, ocean carriers can easily recover their costs and if correct manifest information is not to hand, they simply do not load the container. Baltrans' Ho said: 'Shippers have had to regulate their production line in order to account for the early cut-off.'

In this more security-conscious post-11th September world, it can only be hoped that terrorists will not be able to smuggle weapons of destruction in a container. Nevertheless, the more immediate concern for the Hong Kong shippers is perhaps that US Customs' 24-hour initiative does not significantly slow down the supply chain.

Initially, the signs appear good.

What does it all mean?

The rule: the US Customs service requires ocean carriers and NVOCC's that are transporting cargo to the US from a foreign port to file all manifest information 24 hours prior to the cargo being loaded on a ship. After a 60-day non-enforcement period, the regulations became effective 2nd February, 2003.

The changes: correct description of cargo on manifests is now mandatory. FAK, general cargo, said-to-contain or generic descriptions such as 'machinery', will no longer be allowed. All shippers' and consignees' full names and addresses are required in full. NVOCC's using the Automatic Manifest System (AMS) to transmit data to US Customs will be treated as ocean carriers, and will be liable for any errors, omissions or untimely information. All NVOCC's and forwarders are encouraged to register with an AMS service provider.

The impact: US Customs has the power to reject the loading of cargo that does not meet the designated regulations. 'Do not load' messages will be issued to ocean carriers or NVOCC's in clear violation of the rule. Ports that have not signed up to the Cargo Security Initiative are subject to the same regulations as those that are participating. Additional administrative or operational costs will be passed down the line to shippers.

Neil Dekker, Containerisation International 2003

Post-Panamax passion

After a slow start, the post-Panamax containership is gaining popularity among the world's leading liner companies. Data compiled by Containerisation International Yearbook and MDS Transmodal reveal that over the next three years, this sector of the containership fleet will more than double. A report by John Fossey.

Analysis of the Register of Container Carrying vessels published in the various editions of the Containerisation International Yearbook reveals just how quickly the size of containerships has increased since the late 1960s.

From those early days, when Sea-Land Service converted old Liberty tankers and Manchester Liners, Atlantic Container Line and Hapag-Lloyd built ships of between 550 and 1,000TEU to containerise their respective North Atlantic services, slot counts have risen rapidly. Indeed, by 1972/73 lines engaged in Europe/Asia trading consortia, such as the Trio and ScanDutch groupings, were taking delivery of vessels capable of loading between 2,700 and 3,000TEU (47,000/50,000 dwt). The Panamax dimension of 32.32m beam had already been reached with most of these ships featuring lengths of between 280m and 290m.

Subsequent years saw many technical advances, with the result that underdeck stowage of containers increased to 11 wide in many cases and 12 in some designs. Weather deck stows also improved, with five and six tiers (with a top layer of empties) common on many of the mid-1980s/1990s Panamax- built ships. This compared with the three-high on-deck stacking and nine underdeck stows of the earliest Panamax versions.

Meanwhile, the use of high-tensile steel enabled vessel weights to be reduced by about 25 per cent compared to first-generation tonnage. According to a recent report entitled – Post-Panamax Containerships; 6,000TEU and Beyond – published by London-based Drewry Shipping Consultants, these advances resulted in a volumetric container capacity increase of between 40 and 50 per cent (3,000TEU-4,400TEU). Currently, the largest Panamax containerships in the world are the nine-4,442TEU capacity Europe/Asia ships of German liner operator Hapag-Lloyd.

Increasingly, this size of ship has become the workhorse of the main east/west trades. It was the most important factor in the growth of the containership armada which more than doubled between 1984 and 1994. Ten years ago (1986), for example, containerships loading 2,500TEU and above accounted for 319,994TEU (12.4 per cent) of the total fleet, a share that had risen to 29.4 per cent (1.3 million TEU) in 1995.

Moreover, the shift towards larger cellular ships is continuing, with vessels loading 3,000TEU and over now numbering 273 units aggregating 1.1 million TEU. This represents approximately 22 per cent of the 4.8 million TEU currently in service. In addition, this size of vessel dominates the orderbook, accounting for 48.7 per cent (nearly 520,000TEU) of the 1,066,802TEU slots contractually confirmed for delivery over the next two-and-a-half years.

Significantly, close to 60 per cent (over 320,000TEU) of the orderbook comprises post-Panamax vessels. By 2000, this ship type will amass more than half a million TEU slots and account for 9.1 per cent of the total containership armada, compared with just 3.8 per cent (185,397TEU) in 1996. In 1988, when the first post-Panamax units – 5x4,340 C10s were delivered to Oakland-headquartered APL – this vessel design accounted for less than one per cent of the container carrying fleet.

But the growth of the post-Panamax fleet has been erratic. Indeed, the pioneering move of APL was not followed immediately by its rivals, who adopted a wait-and-see approach before committing themselves to the concept. It was nearly four years until the next series of ships was delivered – 6x4,441TEU units for Hyundai Merchant Marines' trans-pacific network, although single ships had been delivered to CGM and MISC in the meantime. In 1995, over 80,000TEU of post-Panamax slots were delivered, including vessels to Mitsui OSK Lines, Nedlloyd Lines and NYK Line for their Europe/Asia shuttles, a further and larger series of vessels (4,832TEU) to APL and the first three 4,960TEU units in a six-ship order for Hong Kong-based OOCL.

Since this time, orders for post-Panamax tonnage have mushroomed. In 1996, 21 vessels (114,567TEU) were introduced into service, with the current backlogs for 1997, 1998 and 1999 totalling 128,373TEU, 87,364TEU and 61,712TEU respectively. Moreover, there is still plenty of time for lines to order vessels and have them in operation by the end of 1999.

In fact orders for Yangming (5x4,700/5,000TEU) and Evergreen Line (10x5,364TEU) are both in the final stages of completing contracts; Evergreen with Mitsubishi Heavy Industries in Japan and Yangming, most likely with China Shipbuilding Corp following the recent completion of the companys' US\$150 million global bond issue.

Other operators that are thought to be evaluating new tonnage for delivery before the end of the century include Cosco, which was scheduled to take charge of its first post-Panamax (5,250TEU) ship in January 1997, and NYK Line, which has a current backlog of five 5,750TEU capacity units for delivery during 1997/98.

Despite the rapid build-up of the post-Panamax fleet, this development is tightly controlled. Currently, there are just ten carriers in the world operating this class of vessel, with APL and Hyundai having twice as much capacity as their nearest rivals. But APL has no ships on order and will slip from second to fifth in the league over the next three years.

At this time Maersk will occupy pole position, as all of its 12x6,000TEU super-post-Panamax ships will be in operation. Hyundai (70,874TEU) will lie in second place and Evergreen in third. In fourth place will be OOCL, closely followed by NYK and P&O Nedlloyd. The latter carrier recently exercised options on two further 6,674TEU capacity ships, thereby raising its total order book for this vessel series to four.

On the basis of current orders, these vessels are scheduled to be the world's largest box ships when delivery commences in 1998. But there is already talk of 8,000TEU – even 10,000TEU – giants being deployed.

As for deployment of the new ships, the Europe/Asia route appears to

be the most favoured trade lane, with HMM, Maersk, NYK, P&O Nedlloyd and NOL vessels all earmarked for this trade. Indeed, only the Cosco vessels are definitely being assigned to dedicated trans-pacific operations.

However, it should be noted that carrier deployment strategies are extremely fluid and can be changed at relatively short notice. Evergreen and Maersk, for instance, are thought to be considering pendula-type services (US West Coast/Asia/Europe) once all of their post-Panamax tonnage is delivered. By the close of 1999, Maersk will have 12x6,000TEU and Evergreen 13x5,364TEU vessels in service.

The post-Panamax ship has definitely come of age and attention will now focus on the super post-Panamax unit according to the Drewry report. Compared to her post-Panamax predecessors the Regina Maersk is the first ship of its type to exceed 1,000ft (318m) in length overall, and its beam of just over 140ft (nearly 43m) shows the shape of things to come, stated the consultant. It comes as no surprise, therefore, that NYK and P&O Nedlloyds' latest ship series closely reflect the design parameters of the Maersk vessel.

Drewry argues that the savings on operating and voyage costs from a 6,000TEU class of vessel will push more lines in this direction. A superpost-Panamax containership could be estimated to generate annual operating and voyage costs of almost US\$10 million per vessel on a typical transpacific rotation, compared to some \$8.4 million for an optimised Panamax design, stated Drewry. On a per slot basis, however, the super-post-Panamax advantage could be estimated at \$440 per annum, or \$27 per TEU per leg, based on eight round voyages per annum.

John Fossey, Containerisation International 1997

The race goes on

According to this year's CI analysis of the top 20 carriers, Mediterranean Shipping Company (MSC) has continued its assault on the top position occupied by the AP Møller-Maersk Group. In terms of cellular vessel capacity, it has cut the 'boys in blue's' lead from 63 per cent to 46 per cent over the past 12 months up to 1st October, 2004. And, if Safmarine and Portlink's cellular capacity is stripped away, leaving only Maersk Sealand, the lead would reduce to 33 per cent – a far cry from the chasm of over 70 per

cent that existed two years ago.

The leap has been achieved by MSC increasing its vessel capacity by a staggering 19.6 per cent over the previous 12 months, compared with only 6.6 per cent for the AP Møller-Maersk Group.While one should not read too much into these league table figures, it seems clear that MSC continues to have pole position very much in its sights. Perhaps because of this, AP Møller-Maersk's chief executive, Jess Soderberg, felt moved to assert at a recent vessel-naming ceremony, that the group had no intention of letting its position slip down the ladder.

Unfortunately, it is impossible to say how each of these carriers' vessel capacity strategies have translated into profit, as neither produces clear accounts for public consumption (see 'More, more, more!', CI October 2004, pp55-57). And, anyway, such financial matters need to be assessed over a longer period than a year, to give the supply-demand curve time to be played out in full.

Much controversy currently exists over when supply will start exceeding demand again – be it at the end of next year, 2006 or 2007.

Whatever the situation may be, the AP Møller-Maersk Group is clearly not unaware as to what has been happening elsewhere in the league table. It now has more newbuild capacity on order than MSC, and rumours abound that it might soon take the world into another phase of vessel expansion with super-post-Panamax vessels of over 12,000TEU capacity.

The last time it made such a move was in 1998, when it awoke the world to the potential of vessels over 6,600TEU capacity. Since then, it has continued to lead the way with these giants, and now has 39 vessels of over 6,000TEU, compared with only 17 for MSC. This emphasises Maersk Sealand's dominant position in the east-west trades, where this tonnage is deployed, whereas MSC is stronger in the north-south trades. An alarming feature of the world fleet today is the growing number of these vessels that it contains. Since 1st October, 2003, the capacity offered by them has grown by 24 per cent, and now represents 14 per cent of the total.

Overall, the top 20's cellular capacity grew by a massive 10 per cent last year, compared with world fleet growth of 8.6 per cent. This resulted in the group's market share growing from 84 to 85 per cent.

The AP Møller-Maersk Group's share of world capacity remained at 13 per cent, although the situation is very different on a tradelane-by-tradelane basis. There was only one newcomer in the league, with Hamburg Sud, the South American specialist, resuming its place at the bottom of the table at

the expense of PIL. Unusually, merger and acquisition activity played no part in this year's changes. Only organic growth was involved. The climbers included APL, NYK, China Shipping Container Lines (CSCL), OOCL, Zim Integrated Shipping Services and CSAV, while Hanjin, Cosco, MOL, CP Ships, K Line, Hapag-Lloyd, Yang Ming and Hyundai fell down the ladder slightly.

Putting aside the spurious result of CSCL, CMA CGM was again the fastest mover in terms of capacity growth in the top ten this year, increasing its capacity by 24.7 per cent, on top of the 33 per cent recorded during the previous 12-month period. Although its fifth position overall remained unchanged, it has considerably closed the gap on P&O Nedlloyd (PONL) and Evergreen, which achieved very lacklustre increases of 1.8 per cent and 1.1 per cent respectively.

All three of these carriers have impressive newbuild order books, but if past performance in the charter and second-hand markets are anything to go by, CMA CGM could easily be in third place by this time next year. Hardly a week now goes by without a new service being announced, particularly from Asia, whereas PONL has been cutting out some lossmaking services.

The point was eloquently made by the company's senior vice president of Asia-Europe trades, Nicholas Sartini, at a recent customer reception in Southampton, UK. Asking the audience how many people knew where Taganrog was located, he was eventually obliged to admit: 'We didn't know much about the Russian Black Sea port either until recently, but it is now in our schedules. At the beginning of last year, nobody imagined that we would have a direct service between China and the Black Sea, yet we have – and we also have another to the eastern Mediterranean, plus another to the Adriatic, emphasising our willingness to adapt to new market requirements.'

If CMA CGM moves up the ladder at the expense of PONL, all of the top four companies will then be family-controlled, demonstrating once again that corporate politics is no match for quick and decisive family management when it comes to ocean shipping. The AP Møller Group and Evergreen might well be in the process of change, but it is early days yet, particularly in the case of the former, whose chairman, Maersk McKinney Møller, only started to hand over the reins last year.

To underline the point, the fastest mover in the top 20 league this year, CSAV, which rose from 19th to 16th place, is also privately controlled by its

chairman Ricardo Claro. During the past 12 months, the South American specialist increased its capacity by a remarkable 54 per cent – largely through Norasia, which it took over in 2000.

A spokesperson within Norasia recently commented: 'Since being taken over by CSAV, much time has been spent consolidating our position within the group. Now we are ready to spread our wings a bit more, especially in the east-west trades, while CSAV remains focused on the north-south trades.' During the past six months, Norasia has introduced three new services between Asia and Europe with a variety of partners, including a westbound round-the-world schedule involving Gold Star Line and CSCL.

Expanding on the merits of family versus corporate management, David Cheslin, official spokesman for Evergreen, said: 'History shows us that privately-controlled ocean carriers have always been better market leaders than corporate conglomerates, and Evergreen is a good example. This applies to all types of vessel ownership, not just container carriers. The maritime market just seems to be too fast-moving for corporate management to handle as effectively.'

Another hidden feature of the top 20 table this year is the way ocean carrier attitudes towards vessel ownership have been changing. As a reminder, the vessel capacities of each ocean carrier include owned, leased and long-term chartered tonnage. As explained in 'Unchartered Waters', only a few years ago, about 60 per cent of the world fleet was directly owned by ocean carriers, with the remainder being chartered to deal with market elasticity.

Today, however, the 'owned' share of the top 20 carriers has fallen to only 52 per cent, and the process of decline seems far from over. The last time this situation was analysed, in April 2004, the ratio was already higher, at 55 per cent. In very broad terms, over 60 per cent of the formidable vessel capacity on order today – comprising 47 per cent of the existing world fleet – appears to be owned by either tramp owners or finance houses.

The significance of the change is outside the scope of this article, but should not be ignored.

If the top 20 table were to be recalculated using only vessel ownership as the sole criteria, a completely different set of names would appear, including many German KG finance houses or ship management companies, such as ER Schiffahrt, MPC Capital and Peter Doehle. For example, ER Schiffahrt's fleet in August 2004 consisted of 76 vessels totalling 344,131TEU, of which 30 vessels totalling 157,553TEU were on order.

To make matters even less clear, Peter Doehle has just entered into a new joint venture vessel ownership deal with CSAV for some of its newbuilds. If vessel 'ownership' was complicated before, it is, therefore, now entering an even more confused environment, in which ocean carriers could end up being in even less control of their own destiny. At today's price of around US\$80 million for a 6,500TEU vessel that can only be employed in a few trades, it is not difficult to understand why.

Containerisation International 2004

The next 25 years – moving forward, looking back

Seen from the perspective of 2030, the last twenty-five years have witnessed a gradual shift in viewpoint on the part of humankind as the realities of the global village have materialized. While many of the fundamentals have remained unchanged, the way these fundamentals are viewed has changed perceptibly. The concept of governance and a longer-term view on the environmental impact of developmental growth have increasingly influenced global decision-making processes, at both political and commercial levels.

Driven to a great extent by the progressive demise of cheap energy over the period from 2000 to 2015, this new paradigm has had to contend with the growing impact of resource depletion together with increasing costs, global warming and environmental degradation.

On the energy front, the peak levels of global crude output attained in the mid-2020's are expected to enter an extended period of decline over the course of the next decade. This prospect alone has tended to concentrate minds and to trigger strategy reviews in a manner similar to that seen in the early years of the century, when the social conflict, pandemics and natural disasters characterising the period brought in their wake more cooperative policy responses.

With governance and sustainability issues increasingly to the fore, governmental and corporate policy has embraced a progressively more

pragmatic tone, as witnessed by the rapid adoption and widespread implementation of energy initiatives related to renewable sources from 2010 onwards. While differences in emphasis have been evident on a country-bycountry basis, the evolution of policy in favour of integrated transport and improved infrastructure has also been rapid. Implementation of such strategies, however, has sometimes been more problematic.

The balance between road and rail infrastructure investment has moved steadily to redress the imbalances of the past, particularly in the recent past. At the same time widespread adoption of road toll pricing together with the introduction of various schemes designed to promote the transition from carbon- to hydrogen-based fuel have been far from smooth. Predictably perhaps, measures which have taken cognizance of stakeholders' long-term interests and that have emphasized carrot rather than stick principles have made much better progress – as reflected in the rapid growth of public/private partnership finance deals within both sectors.

Convergent and coherent strategy implementation on the part of governments world-wide, particularly in the all important energy sector, has done much to bolster the global infrastructure investment that is now under way. Contrary to earlier expectations, the world economy has displayed a remarkable resilience, global output growth averaging a little under two per cent per annum over the past quarter century – this against a backdrop of steadily increasing energy costs.

Growth has been far from even. The sustained development seen in emergent economies such as within Eastern Europe, South and East Asia and Latin America has provided much of the underlying impetus. The pace of economic activity within Western Europe and North America has been relatively well maintained, if not as dynamic, with renewed infrastructure investment and continuing growth in the tertiary sector funding a good deal of the development.

As ever, trade volume growth in manufactured goods has continued to outstrip global output development. WTO guidance and, when necessary, intervention has continued to smooth the path, despite periodic bouts of protectionism. While patterns of sourcing have continued to diversify in many sectors of industry, at times at a hectic pace, concentration of production has occurred in places, particularly in such sectors as footwear, garments and electrical equipment. The rapid pace of change also in comparative energy and labour costs has been of considerable significance and international trade in manufactures has been particularly well maintained as a result, averaging growth of some four per cent per annum.

Seaborne box traffic growth continued to outstrip that of the global economic growth with the continuing penetration of the box into a variety of lower value, higher volume commodities traditionally carried on breakbulk vessels (refrigerated goods, chemicals, forest products, etc) being significant. Lower slot costs on the ever-larger vessels delivered into the containership fleet have provided considerable momentum and underpinned much of this development, encouraging a further widening of the economically 'containerisable' cargo base. While it has been an enduring feature of the market, relatively rapid rates of this sort of cargo conversion have been particularly evident during periods of relatively low slot utilisation on containerships – as witnessed for three/four years starting in 2008 and, more recently, over the course of the past five years.

The resulting expansion in container liftings has averaged a healthy five per cent per annum over the last 20 years; this would have been even higher but for a resurgence in overland container traffic volumes primarily in an ever expanding EU, in North America and, more recently, in Asia. On the other hand, air-freight traffic volume growth at the top end of the market has been much slower than earlier anticipated. In common with many other sectors, environmental considerations and social pressures in support of sustainability has characterised the aviation policy debate for some considerable time; recent changes – on aviation fuel tax and other governmental intervention – has tended, on the whole, to reflect these popular concerns.

The trade in manufactured goods within a variety of countries and regions has been particularly well sustained following on the adoption of a range of market-led policy initiatives. Successively, China, the developing Eastern EU bloc, India, and most recently, Chile, Brazil and South Africa have all experienced particularly rapid rates of container traffic volume growth; much of this growth continues in the major East/West trades. However, North/South trades have clearly also benefited from the rapid economic development in the Southern Hemisphere as a result of continuing shifts in patterns of global manufacturing – with comparative resource costs (energy, raw material and plant) rather than labour costs increasingly the major determinant behind this trend.

Ongoing rapid developments within the communications technology sector have served to further shrink the world, the 'Net' continuing to give strength and form to the 'reality' of the global village. This has profoundly affected the way we interact in business and trade. As elsewhere, the global container system has reaped tremendous benefit from increased connectivity through better communication, which in turn enables closer ties, invariably of a longer-term nature between trading partners, and an enhanced degree of understanding and cooperation between the links that make up the complex international supply chains.

With goods and stock levels continuously monitored at point of sale, the emergence of seamless communications between manufacturers/traders and logistics operators has enabled progressive co-ordination between production and distribution systems. Further development and fine-tuning of these tailored logistics packages continues to gather pace year-on-year, underpinned by rigorous and continuous shipment monitoring from origin to destination. Furthermore, the electronic generation of the accompanying documentation – security authorisation, bills of lading, manifests, waybills, payments and such like – have become more efficient. Indeed, developing a competitive advantage via the design and provision of such integrated supply chain support systems has proven to be one of the few areas where container carriers have been able to differentiate themselves effectively.

This, and other factors, has gone some way toward ameliorating the negative impact of the supply/demand cycle, which characterised the container-shipping arena over much of the early 21st century. While rates have been under pressure throughout this period, primarily as a result of surplus capacity, the ever-stronger links forged between operators and their major customers, particularly through an increasing transparency of their mutual interaction, have been an important contributory factor in providing some degree of longer-term rate stability. This effect was very marked from 2009 to 2012, when the vacuum left behind by the demise of the liner conference system was particularly strongly felt. Shippers continue to demand the lowest freight rates possible, yet there is now tacit acknowledgement that maintenance of the range of high quality services currently required must be accompanied by box rates sufficient to sustain reasonable levels of profitability within the global container shipping industry.

The emergence, from a legislative point of view, of an increasingly uniform container shipping playing field has also proved beneficial insofar as the overall level of rates is concerned. The legacy of high costs borne by most established, conference-orientated carriers operating expensive, domestically-produced newbuildings under national flag registry began to dissipate toward the end of the last century. The accompanying progressive erosion in the cost advantages enjoyed by the new breed of emergent, generally independent carriers operating less expensive vessels under more open registries has continued apace through the last two decades.

This reduction in underlying costs has generally tended to generate an accompanying convergence of rate levels. Recent developments have shown that a positive view on rapprochement on rates with less fiercely competitive activity has lead ultimately to revenue maximisation for carriers. And box rates have been far more buoyant than originally envisaged – despite the continuing overhang of surplus capacity.

Technical and operational developments within the container-shipping arena have tended also to promote and encourage this more positive note. With almost identically-sized ships now operating virtually identical, fixedday, weekly services with similar port rotations, the scope for product differentiation has been considerably eroded. Staying the course in a rapidly maturing 21st century container-shipping industry clearly requires operators to do the right thing at the right time – with the result that that there is now very little to choose between them. As might be expected, ongoing in a maturing industry merger and acquisition activity and the continuing evolution and growth of consortia, has been very significant in the last twenty years – of these trends, more shortly.

The industry's pursuit of available economies of scale has continued unabated and vessel sizes have continued to increase steadily – in line with the availability of higher-capacity quayside container gantry cranage and the requisite deep water. Recent developments involving ninth generation equipment offering the potential for handling rates in excess of fifty moves per hour have served to further extend and reinforce the use of such vessels and the economies they afford. From the post-Panamax 4,000 TEU vessels of the mid 1990's to the present generation of 15,000 TEU vessels (or 125,000 DWT and drawing 17m) now being deployed on the larger volume, longer-haul East/West trades, the overall pace of development has been clearly rapid.

Technological improvements in slow speed diesel design have proceeded apace with the growth in ship size, enabling service speeds at or around the 22/24 knot level to be more economically maintained. Mirroring developments on land, environmental concerns have prompted renewed interest in the further development and deployment of nuclear-powered commercial vessels. Marine nuclear propulsion has been around now for nearly 75 years, the most recent proposals centering on the feasibility of constructing a 15,500 TEU vessel capable of 28 knots. The proposed name for the vessel is the Otto Hahn II. Automated engine and bridge/navigation systems have meanwhile continued to increase in sophistication and reliability, enabling a further reduction in vessel operating costs and crew numbers – which seem to have now settled in the 12/14 man range.

Organisational economies have also been avidly sought, primarily via consortia operations but also from absorption following acquisition. Although many of the smaller operators have continued to exist, the niche markets many of them serve, particularly those centering on the smaller volume North/South trades – have all but disappeared as end-end services as they are subsumed within complex global trade patterns. From the initial absorption of the higher-cost North American operators (domestic trade carriers aside) to the more recent takeovers of a number of the smaller European carriers, the ever-growing scale of the successor organisations has been readily apparent. This ongoing process of consolidation and concentration has left a small number of operators handling an everincreasing proportion of global container traffic.

The pace of change at the container port/terminal interface and inland has proven equally rapid of late. Within the major European trading bloc, the EU has added another six member states bringing the total to thirtyone and the volume of intra-Union trade has continued to steadily increase. Long haul rail freight (including container) traffic volumes have expanded at a particularly rapid rate over the past decade following on a raft of EUsponsored public/private partnership finance initiatives, which have effectively privatised the existing European rail network. Immediately prior to this, EU rail network subsidies had been running at a level approaching $\in 60$ billion per annum.

Much of the recent rapid intra-EU growth has stemmed from the sustained development of a number of major Eastern EU economies, notably Russia, Ukraine, Hungary and the Czech Republic and the resulting burgeoning levels of East/West trade within the EU. Intermodal traffic volumes on block trains running inland to and from the major North European ports have benefited also from the steady increase in established trades, particularly on the longer-haul routes linking with Italy, Slovenia, Greece and other parts of the Mediterranean.

Marine carriers have been at the forefront of many of these intermodal developments, some of them as a result of initial forays into the swap body

market and others, increasingly, into full-blown intermodal and piggy-back operations. Looking ahead and in line with emerging environmental imperatives, there are signs from Brussels of further significant investment initiatives in the EU rail infrastructure, an area of the global container trades where Europe clearly leads other parts of the world.

Len Goss, CSR 2006



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